Adolescent Relationships

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Voorwoord

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Voor mijn ouders.

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Chapter 1

"Relationships are complicated"
Robert A. Hinde (1997)

Introduction

Adolescents are involved in a network of relationships, for example, with their parents, siblings, friends, and acquaintances. These relationships have characteristics in common, but each of them also has unique characteristics, and is uniquely supportive. In studying these relationships, one should consider the social context in which they occur. In this social context a number of levels can be distinguished. Relationships refer to one level, but at the same time involve other levels. For example, in every relationship two individuals are involved, and the individual can be regarded as a specific level. Also individuals and relationships are situated in a society which constitutes another level. The aim of this dissertation is to study adolescent relationships and the support the adolescents perceive from these relationships. Three general topics will be studied, each consisting of a number of questions. The first general topic of study concerns the person characteristics of the adolescents. In answering this question the adolescents' self-reports on personality and the peer reports on the adolescents peer group functioning are examined, as well as the prediction of both on peer acceptance and peer rejection. This will be done in chapter 3. The second general topic of study is the support the adolescents perceive from their mothers, fathers, special siblings, and best friends. The characteristics of this support will be examined and it will be investigated whether specific subgroups or types of adolescents exist who differ in their configuration of perceived support from the four persons mentioned above. In addition, developmental effects of the adolescents' perceived support will be highlighted as well as the relation between the adolescents' perceived support and their adjustment. All this will be done in chapter 4. The third general topic of study concerns the adolescents' friends and friendships, and will be addressed by answering the questions who the friends are and what characteristics the friendships have. The friends and friendship characteristics will be related to individual differences in adolescents' perceived relational support. This will be described in chapter 5.

Each of these topics refers to specific levels of the social context. These levels are in that way related to each other. To explain this relation we will introduce a conceptual framework that articulates the different levels of the social context and that will be used as a guideline where appropriate in this dissertation. This will be done next. After that we will elaborate on some aspects of the studies and relate them to the conceptual framework. Finally, we will

announce three empirical studies that concentrate on the three general topics mentioned above.

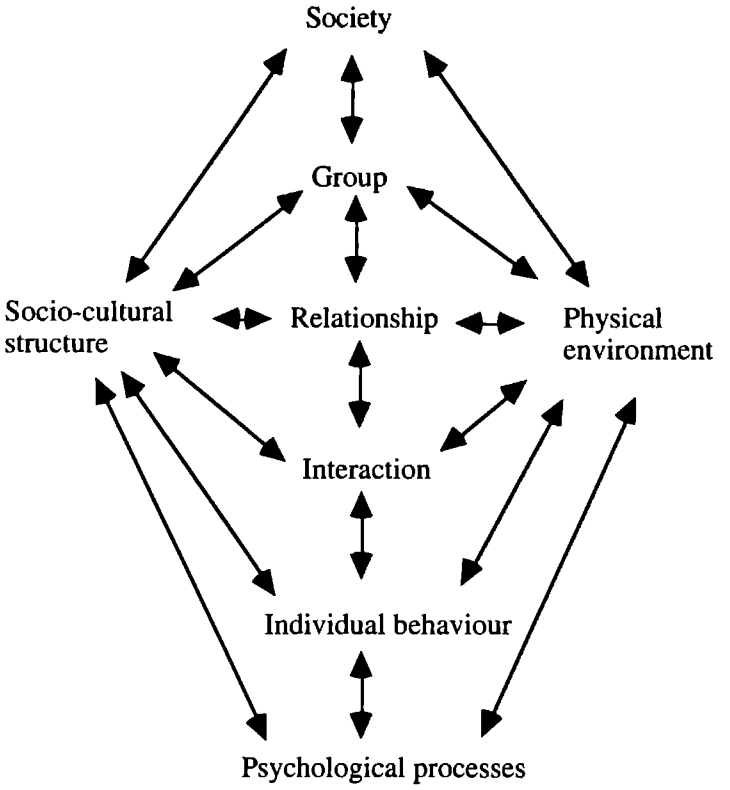
Conceptual framework for the social context: Hinde's social complexity model

As mentioned, in the three empirical studies different levels of the social context are referred to. To describe these levels, to relate the three studies with each other, and to streamline the general discussion, we will use Hinde's (1997) model of social complexity as a guideline. When necessary and appropriate, aspects of the studies will be looked at through the theoretical window of this framework.

Hinde's (1979, 1997) model of social complexity has been especially significant for studying relationships (Rubin, Bukowski & Parker, 1996). According to Hinde different levels of social complexity can be distinguished, with subsequent levels mutually affecting each other. After introducing the model briefly, we will focus upon four levels that are of particular relevance for the empirical studies which will be presented later in this dissertation, because phenomena at these levels will be examined. These four levels are the psychological processes within an individual, the individual's behavior, the relationships, and the groups. The other levels, which we recognize to be as equally important in general as the ones we will highlight, will not be described in detail.

At the lowest level of his model (see Figure 1.1), Hinde distinguishes the *Psychological Processes* that take place within the individuals. These processes include affective, cognitive, and behavioral processes, and are mediated by the meanings given to experiences and situations. These psychological processes influence, and are influenced by, the *Individual's Behavior*, which is considered a second level. Both these levels refer to the individual's characteristics, and are unique for that individual. These two levels will be described more in detail later in this chapter. The third level is the level of *Interaction*. An interaction is the syntheses of the behaviors of two individuals into a social exchange of some duration, and can be described as 'individual A shows behaviour X to individual B and B responds with Y' (Hinde, 1997, p. 36). The next level is the level of the *Relationship*. A relationship implies a series of interactions between two people who know each other, involving interchanges over some time, in which the participants take account of each others behavior. Relationships are affected by, and, in turn, affect the constituent interactions. Because relationships play a dominant role in this dissertation, they will be elaborated later in this chapter. Relationships are embedded in *groups* and within *society*, the two highest levels of complexity. The adolescents' group functioning, referring to the group level, is studied in the different chapters and the group level will, therefore, also be described more in detail later.

Figure 1.1 A simplified view of the levels of social complexity



From: Hinde (1997)

At all levels an individual is influenced by the socio-cultural structure (e.g., values, beliefs, and institutions) and the physical environment. Although the different levels are considered more or less separate entities, it should be noted that each of these levels incorporates the individual. At each of these levels the individual behaves in his or her own specific way, influences and is influenced by other individuals, and affects and is affected by the characteristics of the level.

Description of four levels of the social complexity: psychological processes, individual behavior, relationship level, and group level

In the three studies that will be presented four levels of the social complexity, that is the psychological processes within an individual, the individual's behavior, the relationship level, and the group level, have been the focus of attention In this paragraph these levels will be described in further detail

Psychological Processes

At the lowest level of the social complexity are the psychological processes within an individual The psychological processes concern the individual's emotions, cognitions, the way he or she stores and retrieves information, the expectations he or she has, etcetera All of these processes influence and are influenced by the individual's behavior, and all are incorporated in the individual's self-concept Although this self-concept, as the unit of measurement of the psychological processes, is relatively stable, it represents underlying dynamic processes According to Hinde, the individual's self-concept (i e , the processes incorporated in the self-concept) determines how that individual perceives his or her relationships The self-concept influences cognitions or knowledge, affects and has motivational implications An important aspect of the self-concept is that its content is based on past experiences For example, on the basis of early experiences with "attachment figures" a young child forms mental representations of the self and of those figures, and representations of his or her relationships with them (Bowlby, 1982) In other words, the psychological processes (i e , affects, cognitions, expectations incorporated in the self-concept) influence the way how an individual perceives a relationship, influences the accounts of that relationship, and thus, its future course In turn, the relationships influence the psychological processes (or self-concept), the precise relation between the two, however, is not yet fully clear (Hinde 1997)

The self-concept is relatively stable, but is nevertheless affected by the interactions and the relationships the individual has It is dependent on and modifiable by experience, and new experiences can alter the affects, cognitions, and behaviors, which, in turn, eventually can alter the relationships

In this dissertation, the psychological processes are captured by assessing the adolescents self-image in terms of their self-reported personality reflecting the cognitions they have about themselves

Individual behavior

The individual behavior constitutes the second level of the social complexity that is of interest, because the adolescents' adjustment, which is examined extensively in this dissertation, refers to this level The adjustment has been assessed by a number of measures

tapping different domains of adolescent functioning. The adolescents addictive behaviors have been measured by items on alcohol and drug use, the use of tranquilizers, smoking, and gambling. Adolescent involvement in delinquent and antisocial behaviors have been assessed by items representing a wide range of deviant behaviors.

We further assessed adolescents' self-esteem, somatic complaints, brooding, loneliness, and the appreciation of their home situation. These attributes refer to individual characteristics, but are somewhat difficult to place within Hinde's model, because they neither refer explicitly to the psychological processes nor to explicitly to the individual behavior. In this respect, the model does not offer totally clear boundaries.

Relationships

As said, relationships are a series of interactions between two individuals who know each other; the interactions are not independent but influence each other on the basis of past interactions and of expectations of future interactions.

Individuals can have many relationships at the same time, each with its own qualifications. Different qualities have been identified, for example, reciprocity, commitment, and equality (Hartup, 1993). Hinde (1997) distinguishes 10 categories of dimensions of relationships, or relationship characteristics. In this dissertation, we will focus on one important component of relationships, namely the support relationships can provide. More precisely, on the support an individual perceives from a relationship. Important to note that perceived support does not have to be similar to the received support (cf. Sarason, Pierce, & Sarason, 1990), but that it is the individual's perception of the support that the relationship partner provides. Different relationships (e.g., with mother, father, best friend) can be differently supportive for different individuals, or, better speaking, different individuals can perceive different levels of support from different relationships. This support can also vary according to the individual's gender and age (cf. Furman & Buhrmester, 1992). Later in this chapter adolescents' perceived support will be described in more detail.

An individual can have many relationships simultaneously, for example, an adolescent can have relationships with his mother, his father, with siblings, with a best friend, other friends, with teammates at the football club, with classmates and so on. All of these relationships can be described in terms of differences in the relationship characteristics. Relationships are also influenced by the other relationships the individual is engaged in. For example, an adolescent's relationship with a friend can influence his/her relationships with his/her father and mother, say because the adolescent goes out a lot, starts drinking alcohol, and stays out late, which the parents don't approve of. The adolescent's relationship with the friend may even change the relationship between the parents. This shows clearly how relationships are interwoven and that they should not be seen as entities but rather as dynamic processes (Hinde, 1997). Similar to

the self-concept, which is a relatively stable entity representing dynamic processes like cognitions and affects, the relationships are the state or unit of measurement but refer to dynamic processes.

Groups

Because in chapter 3 phenomena at the group level are examined and these group phenomena are used in the other chapters as well, this level needs some more explanation. A group is a structure that emerges from the nature, quality, and patterning of the relationships and interactions, present within a population of individuals. A group can form spontaneously but can also be created formally (e.g., a school class). It consists of a number of interacting individuals who have some degree of reciprocal influence over one another. Like all the levels of social complexity, it is influenced by, and influences, the adjacent levels, here being the society at large and the relationships contained in a group. Importantly, groups have properties (e.g., cohesiveness, group goals, hierarchy) that are not present in the individual relationships themselves. This is true for all levels of the social complexity: Each level has properties that are not related to the levels below. In other words, groups have properties that can not be predicted from the collection of relationships which constitutes the dynamics of the group.

In chapter 3 we have gathered data at the group level by assessing the adolescents' peer group functioning, perceived by their classmates.

Aspects of the studies and the social complexity model

So far, we have described Hinde's social complexity model that will be used as a framework and theoretical guideline for presenting the three empirical studies in the chapters later in the dissertation and for discussing their results. We have seen that the social complexity consists of different levels. In the three studies, phenomena will be studied that refer to some of these levels and the relation between these levels will be elaborated. Some key aspects of these studies will be looked at more closely now. If appropriate, they will be related to aspects of the social complexity model.

Different levels of analysis

The model makes clear that there are several levels of complexity, each with its own unique properties. Furthermore, it is the context of a level that gives meaning to phenomena, and the same phenomena can have different meanings at different levels. Thus, phenomena (e.g., aggression or sociability) should be studied at the level at which they occur and inferences should be made at the same level at which these phenomena are measured (e.g., the individual or the group level). This seems easy and obvious enough, but as research shows it is not always that simple. Sometimes it seems difficult to recognize the level to which a phenomenon

is related, as is revealed by the confusion that exists among researchers, for example, regarding the phenomenon of popularity. Some view popularity as a group phenomenon (e.g., Bukowski & Hoza, 1989), others as an individual characteristic (Newcomb, Bukowski, & Pattee,1993).

Regarding relationships and characteristics of relationships this implies that they should be studied at the relationship level itself. However, most of the instruments used to measure relationships are based on self-reports reflecting an individual's subjective perception of (characteristics of) his or her relationship, and can, therefore, be regarded as not fully related to the relationship level but also concern the individual level. For example, most measures on the quality of friendship are based on self-reports (e.g., Berndt, 1996; Bukowksi, Boivin, & Hoza, 1994; Parker & Asher, 1993). Although subjective data are an index of relationships -- the way individuals perceive themselves and their relationships is an important element of the nature and future course of those relationships (Hinde, 1997)-- the use of (only) self-report data points to an important issue. Any (dyadic) relationship involves two participants. Self-reports assess the individual's perception of relationship characteristics, for example, of intimacy. Because it is a characteristic of the relationship between two participants, two self-reports are needed to capture it. These two self-reports are not necessarily, or likely, to be similar. The question is which one is considered to be the best to reflect the intimacy in the relationship? Moreover, what if the perception of only one participant is measured, which is often the case with the assessment of intimacy (Acitelli & Duck, 1987).

In chapter 5, we have tried to avoid the pitfall of relying on the self-report measure of only one participant to qualify the relationship between adolescents and their best friends. We have used measures that seem to be less dependent of one individual's perception of his or her relationship.

Perceived relational support

Social support is an important dimension of relationships (cf. Newcomb, 1990). In this dissertation, the support adolescents perceive from four different relationships is studied. In research on perceived support, two diverging models are predominant. In one model (i.e., the provision model) the dimensions of support are considered most salient and the different relationships are aggregated into one set. In the other model (i.e., the provider model) the support is considered unidimensional, and the different relationships with different providers are considered to be most salient. Recently, researchers have proposed to integrate the two models in which both the support dimensions and the different relationships are distinguished (e.g. Cauce, Reid, Landesman, & Gonzales, 1990).

As we have seen, individuals are involved in a great number of relationships at the same time. Studying perceived support from a network perspective seems most appropriate to capture the different relationships. Examining multiple relationships simultaneously offers the possibility to compare different relationships with each other and to investigate, for example,

compensatory effects (cf. van Aken & Asendorpf, 1997). To date all research on adolescent perceived support is based on a variable-centered approach in which all the subjects under study are treated as one total sample. This leaves open the question of the existence of subgroups, or types, of subjects who differ in their configuration of perceived support. What is needed to answer this question is a person-centered approach. Both the variable-centered and the person-centered approach will be studied in chapter 4. In that chapter, the adolescents are categorized into types according to the dimensions of support they perceive from their mothers, fathers, special siblings, and best friends.

Finally, in an individual's perceived support, three elements can be distinguished (cf. Kenny & La Voie, 1984; Kenny & Kashy, 1994). The first element is the individual him- or herself who perceives the support. The second element concerns the person who provides the support (i.e., the provider). The third element is the relationship between these two persons. Individual differences in adolescents' perceived support can be related to each of these three elements. Studying adolescents' perceived support should, therefore, take these different elements into consideration. This will be done in chapter 5, in which the support the adolescents perceive from one relationship that is of specific importance in adolescence, that is, the relationship with a best friend will be studied.

Relationships and Development

According to the social complexity model, individual characteristics influence an individual's relationships. These characteristics can vary in generalizability, from qualifying individuals uniquely (e.g., an individual's self-image in terms of his personality) to relatively broad categorizations, like, for example, gender or age and other developmental markers. Especially in adolescence developmental changes on several domains seem to be of high importance with regard to relationships.

One of the most remarkable things about adolescence is a change in close relationships, specifically in relationships with parents and friends. Friendships, for example, change from orientation on shared activity to intimate emotional foundations (cf. Berndt & Perry, 1990; Buhrmester & Furman, 1987). In adolescence, truly intimate relationships emerge, relationships that are characterized by openness, self-disclosure, honesty, and trust. There are various reasons why the changes in the nature of relationships occur particularly during adolescence, reasons that are related to different levels of the social complexity. First and related to a more biological level, adolescence is a time of rapid biological maturation and body changes, resulting in new emotions, thoughts, and expectations (cf. Petersen & Crockett, 1985), which, together with chronological age affect the relationships. Second and related to the first, changes at the group and society level occur. Older adolescents and adolescents who appear more biologically mature are treated different by their direct environment and by society at large. Norms, values, and expectations from the society will also alter the relationships the

adolescents have. Finally, because of cognitive changes the adolescents develop higher levels of empathy and more sophisticated conceptions of relationships (Lapsley, 1989). These changes occur at the level of the psychological processes within the individual.

Although relationships change as a result of a number of developmental change, research on relationships in adolescence have usually focused only on chronological age as an indicator of development. In addition to age, other markers that refer to different developmental transitions should be incorporated in the analyses, for example, measures that assess pubertal maturation, social changes. In chapter 4 we have tried to address this topic by, in addition to chronological age, incorporating school grade level (which could be considered to refer to the social changes and is related to the group level of the social complexity), pubertal timing (referring to the biological maturation and related to the individual characteristics), and appreciation of the pubertal timing (referring to psychological maturation, and related to the psychological processes).

The content of this thesis

The remainder of this thesis will subsequently present a project overview (chapter 2), and three empirical studies (chapters 3, 4, and 5), a general discussion (chapter 6), and English and Dutch summaries.

Chapter 2. This chapter will describe extensively the data collection and the measures used in the fourth measurement wave of a longitudinal project of the Department of Developmental Psychology of the University of Nijmegen, The Netherlands. This chapter will also include a short description of the earlier measurement waves that took place in 1986, 1987, and 1991.

Chapter 3. Chapter 3 describes a study on the person characteristics of the adolescents. This is addressed by examining the adolescents' self-image in terms of self-reported personality factors and by examining the way the adolescents are perceived by their classmates. The self-report questionnaire was expected to represent the Big Five personality factors. The study is important, because it is one of the first to investigate the Big Five factors in adolescence using adolescent self-reports. In addition to this self-report the adolescents completed a peer nomination questionnaire in which the same items were used as in the self-report. Based on studies on the Big Five (Norman, 1963) that also used the peer nomination procedure and found the Big Five factors, we expected to find the same Big Five factors in this questionnaire as were found in the self-report questionnaire. In line with Hinde's model, however, because the two measures refer to different levels, different factors resulted, irrespective of the fact that the same items were used. According to the model, the context of a level gives meaning to phenomena, and the same phenomena have different meanings at different levels. Because the self-questionnaire refers to the individual level and the peer nomination questionnaire to the

group level (i.e., the school class), the factors revealed by both questionnaires differed. Subsequently, the association between the factors found in both questionnaires and peer acceptance and peer rejection were examined. Given the fact that, according to the model, characteristics of one level (i.e., peer acceptance and rejection at the group level) are not predictable from characteristics of another level (i.e., the individual level), but can be predicted by characteristics from the same level (i.e., the peer nomination factors), we expected that the self-reported factors would not, but the peer nomination factors would show a significant relation with peer acceptance and peer rejection.

The study presented in this chapter is published as a journal article (Scholte, Van Aken, & Van Lieshout, 1997).

Chapter 4. In chapter 4 an important component of participants view of his or her relationships, that is, perceived relational support, has been examined empirically. As mentioned, two competing models (i.e., the provision and the provider model) exist in the research on perceived support. In chapter 4, a model is proposed that integrates both models into a multiprovider-multiprovision model. In this model, different dimensions of adolescents' support perceived from mothers, fathers, special siblings, and best friends have been distinguished and factor analyzed. We expected that neither a provision nor a provider model could fully account for the data and that the factors that would emerge would not be restricted to one of the two models.

As we have seen, using a network approach enables one to study different relationships simultaneously, and, in combination with a more person-centered approach, also to categorize individuals according to their configurations of support perceived from different relationships. We used such a person-centered approach to examine whether subgroups or types of adolescents existed that differed from each other on their configurations of support perceived from the four different persons mentioned above. As far as we know, this is the first study to apply this approach to examine adolescents' perceived support.

In addition we will investigate the association between adolescents' perceived support and adjustment by comparing the types that have been found on their self-reported personality and psychosocial adjustment, and on their peer reported group functioning. As shown before, in adolescence marked changes in relationships, and related to that, in perceived support, occur. To examine developmental effects in perceived support, the support factors that have been found in the factor analyses and the types of adolescents that have been identified in the person-centered approach will be related to four developmental markers. These markers represent the different levels at which changes take place in adolescence. They are chronological age, school grade level, pubertal maturation, and appreciation of pubertal maturation.

This chapter has been written as a journal article, and is submitted for publication.

Chapter 5. This chapter is an empirical study that further investigates differences in adolescents' perceived support. As noted, in an individual's perceived support three elements can be distinguished, being the individual as the perceiver, the relationship partner as the provider of support (both referring to the individual level of the social complexity model), and the relationship between the two (referring to the relationship level). The study in this chapter focuses on one relationship that is of specific importance in adolescence, namely on friendship. It will examine the friend's characteristics and the relationship characteristics in relation to the individual differences in adolescents' perceived support. This will be done by comparing the friends of the different types of adolescents. In addition, the contribution of the characteristics of the friendships to the individual differences in adolescents' perceived support is investigated by relating the similarities between the adolescents and their friends on the various domains of functioning (i.e., perceived support, personality, adjustment, and peer group functioning) to the different types that are found in the person-centered approach. In qualifying the relationships this way we avoid relying on the self-report of one relationship participant only.

This chapter is written as a journal article and is intended to be published.

Chapter 6. This chapter consists of a general discussion, in which the empirical studies will be related to the conceptual framework of social complexity and the results will be discussed in that light. It contains a discussion of relevant methodological and theoretical issues, limitations of the studies presented, and directions for future research.

The chapters 3, 4, and 5 describe three studies that have been written as separate journal articles. As a consequence of this, there will be overlap between the three chapters, especially with regard to the method sections. These method sections will also have considerable overlap with chapter 2 that contains an overview of the data collection and of the measures.

Chapter 2

Project Overview

This dissertation concerns the fourth measurement wave in a longitudinal project of the Department of Developmental Psychology, University of Nijmegen, The Netherlands. The present chapter will give an overview of the data collection and measures of this fourth wave and consists of four sections. First, a brief summary of the first three waves, that were conducted in 1986 1987, and 1991, will be presented. Waves 1 and 2, that concerned the early elementary school years, are described extensively by Cillessen (1991, chapter 2), and Haselager (1997, chapter 2) reports in detail on Wave 3, that concerned the later elementary school years. Second, the data collection and the sample of Wave 4, early secondary school years, will be described in detail. Third, the different samples that were used in the three empirical studies will be discussed, and finally, the measures used in the several studies will be presented.

The descriptions that follow focus on the different samples that have been examined in the various measurement waves. In each wave, the total sample consists of two subsamples: a longitudinal subsample that is basically the same across all of the four waves, and a subsample that is formed by the classmates of the longitudinal subjects, and is different across the four waves.

Project overview and description of Waves 1, 2, and 3

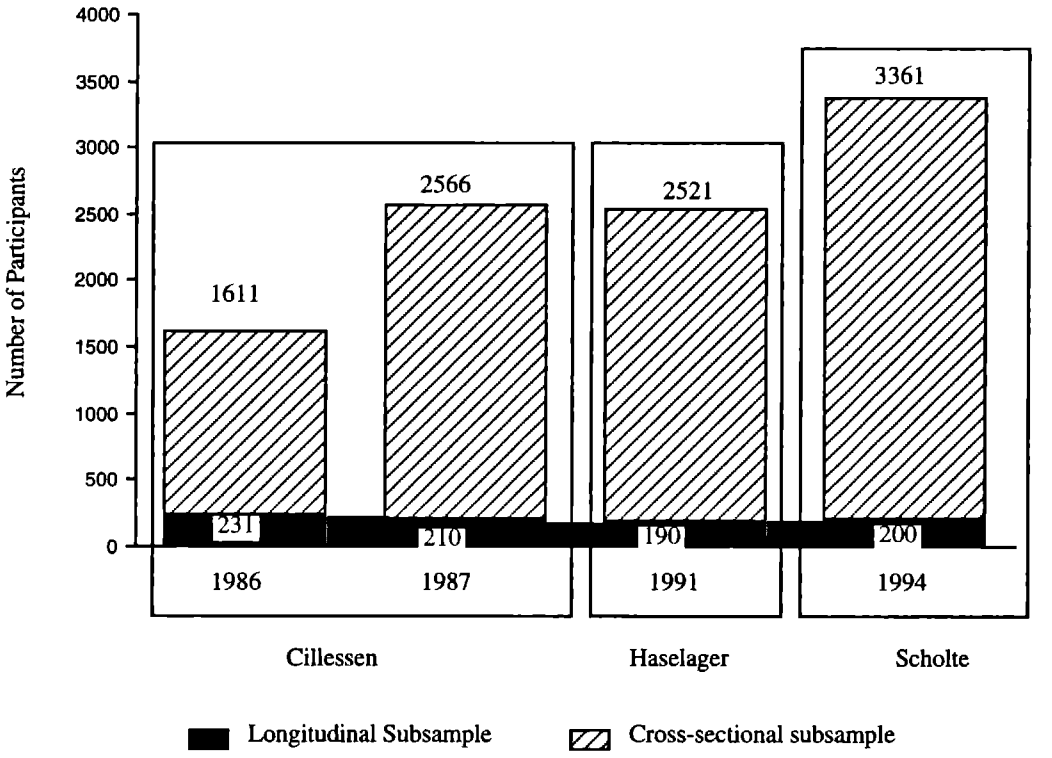
A longitudinal sample of initially 231 boys participated in the three consecutive measurement waves carried out in 1986, 1987, and 1991. In each of these waves, the classmates of the longitudinal boys also participated, resulting in three relatively independent cross-sectional samples. See Figure 1 for a visualization of the longitudinal sample and the cross-sectional samples.

In Waves 1 and 2 the data collection was performed identically. Both waves consisted of two phases, a sociometric screening phase and a play session phase. In the sociometric screening phase of Wave 1 (1986) out of a sample of 1611 children the sociometric status of 435 kindergarten boys and 346 first-grade boys were determined. Their schools were located in the Arnhem-Nijmegen area in the Netherlands. From this sample, 114 kindergarten boys (mean age = 5.2 years, SD = 8.2 months) and 117 first-grade boys (mean age = 6.9 years, SD = 6.7 months) were selected on the basis of their sociometric status (i.e., popular, rejected, average, and neglected) for the play session phase. These 231 boys constituted the longitudinal sample of the longitudinal project. The selected boys took part in 4 consecutive play sessions in which they were arranged in 77 triadic play groups that differed with respect to their sociometric status composition and acquaintedness versus unacquaintedness. The play sessions consisted of an

actual video-taped play session of 15 minutes and a pre- and post-play interview. In each play session three or four different games were performed. In Wave 2 (1987), the same measures as in Wave 1 were collected. In this second wave, the sociometric status of the longitudinal boys was determined in their new class, and the boys were arranged in the same play group as they were in in Wave 1. Twenty-one (9%) of the longitudinal boys (7 triadic play groups) did not participate in the Wave 2 play sessions.

Figure 1.1

Visualization of Cross-sectional and Longitudinal Samples



The Wave 1 and 2 videotapes were evaluated using global ratings for prosocial or antisocial behaviors in each of the games of the play sessions. The teachers of the longitudinal boys in both samples filled in a problem behavior checklist about the boys as well as described the boys with a personality Q-sort.

In Wave 3 (1991) 190 longitudinal boys (82 % of the initial sample) participated, together with their classmates (n = 2341), located in 102 school classes. During classroom sessions, the

children were asked to fill in three questionnaires: A questionnaire assessing bullying involvement, a sociometric questionnaire, and a questionnaire that assessed depressive symptoms.

In addition to these three questionnaires, personality data were obtained from the longitudinal boys by means of personality Q-sorts. The boys were asked to fill these out at school, usually after the classroom assessment. Mothers were asked to describe their sons with the same Q-sorts. The mothers who were not able to come to school provided a Q-sort description at home. Teachers of the boys were also asked to describe these boys with the same Q-sort.

Wave 4: Samples, data collection, and procedure

Longitudinal sample

The longitudinal sample initially consisted of 231 boys in Wave 1, from which 210 and 190 participated in the subsequent measurement waves (Waves 2 and 3, respectively). In Wave 4 (October 1994 - February 1995), 200 longitudinal boys (mean age 14 years, 4 months, SD = 1 year, 0,5 month) participated again, 87 % of the original sample. Of these 200 boys, 165 were also present in Wave 3. There were various reasons for the attrition in the Wave 4 longitudinal sample. First, of the 231 boys, eleven boys refused to participate in the classroom assessment and in the home assessment (see Procedure below for more detailed information about the assessments). Second, from 17 boys the home addresses were not traceable, and, finally, 3 boys were living abroad.

From these 200 longitudinal boys, 20 boys filled out the questionnaires at home, either because their school declined to cooperate (two school classes, containing two longitudinal boys) or because the boys themselves did not approve of classroom assessment (18 boys). These 20 boys filled out at home the same questionnaires as the adolescents during the classroom assessments, with the exception of the sociometric questionnaire.

The longitudinal boys who were ill when their classes were assessed (n = 4), also filled out the questionnaires at home; from them sociometric data were available because they themselves as well as their classmates filled out the sociometric questionnaire.

The 180 longitudinal boys who participated in the classroom assessment were distributed across 149 secondary education school classes, all except one in the Arnhem-Nijmegen area; one class was situated in the town of Alkmaar. These 149 classes were all secondary education classes. There were 17 first-grade classes, 42 second-grade classes, 44 third-grade classes, 43 fourth-grade classes, and 3 fifth-grade classes. The age of the students in these classes ranged from 12 to 20 years. For the longitudinal sample informed consent about the classroom assessment was obtained from the boys themselves and from their parents, as well as from the school principal. The school principal was not aware of the name of the longitudinal boy(s)

present in the classes that were being assessed. The classmates were not informed about the presence of the longitudinal boy(s) in their class.

Cross-sectional sample

The cross-sectional sample of Wave 4 consisted of the longitudinal boys and their classmates that were present during the assessment in the 149 classes, in total 3361 adolescents (1430 girls, 1931 boys). The reason why there were more boys than girls in the cross-sectional sample was that a number of the longitudinal boys were in technical education school classes, and in The Netherlands these classes seldomly contain girls. A total of 194 cross-sectional adolescents that were ill during the assessment did not fill out any questionnaire, but could be nominated in the sociometric questionnaire (see Measures for more detailed information), resulting in a total sample in that questionnaire of 3555, including the longitudinal boys.

The age of the cross-sectional adolescents ranged from 11 years, 9 months to 20 years, 10 months, with a mean of 14 years, 10 months (SD = 9 months).

In this dissertation, no specific longitudinal research questions were addressed. As a consequence, the longitudinal sample was not analysed separately. In fact, the different samples that were studied in the three investigations described in this dissertation consisted of subsamples of the cross-sectional sample (N = 3361), irrespective of whether the participants were longitudinal or not.

Classroom data collection and procedure

The classroom assessments took place between October 1994 and February 1995. They were arranged for each class separately, usually during two regular class hours (two times 50 minutes) without a break. Adolescents who had completed the questionnaires were asked to stay seated until most of the other adolescents were also finished. When teachers stayed in the classroom during the assessment, they were asked not to interfere with the procedure, and not to answer adolescents' questions.

Trained examiners gave a brief introduction about the aim of the assessment, which was explained as gathering information about adolescent psychosocial functioning, and guaranteed confidentiality. Adolescents were told that participation was not obligatory, and that they could leave open questions that they did not want to answer. Only one boy refused participation; he was allowed to leave the classroom. Students' questions were answered before, during, and after the assessment. Subsequently, a class instruction was read aloud. Then each adolescent was given a booklet, consisting of 7 questionnaires, from which the first questions (concerning demographic variables) were filled out under the guidance of the examiner. Each adolescent was also given a roster with the names of all classmates on it, including his or hers; each name was followed by a code number. These code numbers, instead of the adolescents' names, were used in answering the sociometric questionnaire.

Because we expected that not all adolescents would have enough time to complete all of the 7 questionnaires, the questionnaires that were considered most important (i.e., the questionnaires concerning the perceived relational support, the personality, and the sociometric assessment), as well as the demographic questionnaire, were answered first. The other 3 questionnaires (i.e., psychological well-being and delinquency, puberty development, and bullying involvement) varied in the order in which they appeared in the booklets. As a consequence, there were 12 versions of the booklet. That is, (a) there were 2 versions of the sociometric questionnaire, (a pilot study had shown that one version with the double number of items would have been too time-consuming for the participants, see Measures: Sociometric questionnaire, for a detailed description), (b) the questionnaire measuring the puberty development had a version for girls and a version for boys, and (c) the questionnaires concerning psychosocial adjustment, puberty development, and bullying varied in order (i.e. 1-2-3; 2-3-1; 3-1-2), resulting in 2 x 2 x 3 = 12 versions. These different versions were distributed equally in the classes. In so doing, we were able to obtain possibly most responses.

The examiners had been trained for data collection by the investigator and were all developmental psychologists.

Individual data collection procedure

Prior to the classroom assessment, the investigator contacted all longitudinal boys and asked them permission to visit their school classes. After the classroom assessment, these boys were contacted again and were asked to fill out the *Friendship Quality Scale* (Bukowksi, Hoza, & Boivin, 1994) at home. Of the 200 longitudinal boys, 38 (19%) refused to cooperate. In contrast to the classroom assessment, participation was rewarded with a cheque in value of f 10,- (± US $ 5,-).

The parents of the longitudinal boys filled out two questionnaires at home. The first concerned a personality questionnaire, which the parents were asked to answer for their child. The second questionnaire concerned the adolescents' relational support from different providers, as perceived by the parents. From 173 longitudinal boys at least one parent participated. Participation was rewarded with a cheque in value of f 10, -.

Measures

In this section we will describe the measures that were used to collect data in Wave 4. Some of the measures are described extensively in separate studies that will be presented as chapters of this dissertation. In order to prevent too much overlap they will, therefore, not be described in detail here. Other measures have not been used in any chapter, and will not be presented in great detail either: This concerns the Friendship Quality Scale (Bukowski et al., 1994), and the questionnaires that were answered by the parents.

Demographic variables

Several questions were asked concerning the ethnic background of the participants. These questions were 'Where were you born', 'What is your nationality', and 'To what [ethnic] group do you consider yourself to belong'. The answers included The Netherlands, Surinam, The Netherlands Antilles or Aruba, Turkey, Morocco, other countries from the Mediterranean, or otherwise. In addition, the parents' educational and occupational level was assessed.

Perceived Relational Support (Relational Support Inventory, RSI)

Van Lieshout and co-workers (Van Lieshout, Cillessen, & Haselager, in press; Van Lieshout & Van Aken, 1995) have distinguished four bipolar dimensions of relationships that are expressed in corresponding dimensions of relational support (cf. Erickson, Sroufe, & Egeland, 1985; Maccoby & Martin, 1983). These bipolar dimensions concern (1) offering warmth versus hostility in emotional exchange, (2) respecting someone's autonomy versus setting limits in regulating behavior, (3) quality of information versus withholding of information or misleading in exchange of information, and (4) acceptance or convergence versus rejection or opposition of each other's goals. In addition 'acceptance as a person' was distinguished as a fifth, unipolar, dimension that qualified the relationship in general. On the basis of these dimensions a 27-item questionnaire was developed, that was expected to represent each of these 5 dimensions. Each pole of the four bipolar dimensions was represented by three items. Acceptance was also represented by three items.

Individuals participate in a network of personal relationships all of which can differ in their significance and in the support that they can provide. For the adolescents we distinguished six relationships with six different persons that could be supportive. These persons were the mother, the father, a special sibling, a special adult, a best friend, and a romantic partner. 'A special sibling' was the sibling that was most special to the adolescent. A 'best friend' was described as 'someone that will nominate you in turn as his or her best friend'. Romantic partners were not considered best friends.

The adolescents were asked to indicate on a 7-point scale how much each of the 27 items, ranging from (1) *very true* to (7) *very untrue,* with (3) *sometimes true, sometimes untrue* in between, held for each of the six persons mentioned above. Psychometric properties and factor structure of the RSI will be given in chapter 4 and will, therefore, not be presented here.

Parental perceptions of enacted support

The parents of the longitudinal boys were also asked for participation. Their questionnaire was similar to that which the adolescents had filled out, with the exception that the mother and the father had to rate on the 7-point scale how much they thought that each of the items was true for their son. The persons for which the parents had to answer the questions were: the parent

him- or herself, the other parent, the sibling they thought was a special sibling for their son, and the person they thought was their son's best friend.

Personality

In recent years, widespread agreement has grown about the existence of a five factor model of personality (cf. Goldberg, 1990, 1992; John, 1990; McCrae & Costa, 1987). According to this model there are five factors, or the Big Five, that constitute the basic dimensions of personality. These factors are usually labelled Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness or Intellect.

We used a self-report questionnaire consisting of 25 bipolar items to assess adolescents' personality. These items were expected to represent the Big Five factors, five items for each factor. These items were taken from three sources: (1) a Dutch questionnaire measuring the five personality factors (Elshout & Akkerman, 1975), (2) the Big Five items in the Dutch translation of the California Child-Q-sort (CCQ) (Block & Block, 1980; van Lieshout & Haselager, 1994), and (3) Dutch translations of Goldberg's markers (1992). The construction of these items was performed in two steps. First, for each personality factor five facets were distinguished, for example, the facets social activity, expression of feelings and thoughts, verbal activity, motor activity, and initiative were distinguished for Extraversion. Second, for each of these facets a bipolar item was worded, based on items from the three available sources. For the specific descriptions of the items, see chapter 3. To prevent response tendencies, the items were counterbalanced with half of the more desirable poles on the left side and the other half of the more desirable poles on the right side. The items were ordered quasi-randomly in such a way that each item associated with the same factor were separated by items of the other four factors. Adolescents had to rate on a 7-point scale how true each of the poles was, with the scale ranging from (1) *Pole A very true* to (7) *Pole B very true*, with (4) *both Pole A and Pole B a little bit true* in between.

Psychometric properties and factor structure of the personality questionnaire will be given in chapter 3 and will, therefore, not be presented here.

Sociometric questionnaire

All adolescents present during the classroom assessment were administered a sociometric questionnaire which was part of the booklet. Together with this booklet the adolescents were also given a roster with the names of all classmates written on it, followed by a code number. Adolescents were asked to write down the numbers of three to five classmates that best fitted each of the items of the sociometric questionnaire. When they could not nominate three classmates the adolescents were allowed to nominate fewer.

Two versions of the questionnaire were constructed, each version consisting of 14 unipolar items. Three items were similar in both versions, that is, 'Which students in your class do you like most?' (liked-most item), 'Which students in your class do you like least?'(liked-

least item), and 'Which students in your class are your best friends (nominate your best friend first)?'. One item in both versions concerned bullying involvement. In one version this item was 'Which students in your class frequently bully other students', in the other version this item ran 'Which students in your class are frequently bullied by other students'. The remaining 10 items in each version were derived from the self-report questionnaire on personality.

We decided to construct two versions of the sociometric questionnaire with 10 unipolar items each instead of one version with 50 unipolar items (recall that the self-report questionnaire had 25 bipolar items, in total 50 unipolar items). The reason was, as a pilot study had shown, that 50 items would have been too time-consuming for the students. Because the classes had an average size of 23 students and 10 students per class were considered sufficient to obtain reliable and valuable nomination scores, the construction of the two versions seemed appropriate. Each of the two times 10 items that were used in the questionnaire consisted of a vignette of 2 more desirable or 2 less desirable poles from the self-report questionnaire on personality, and represented the same Big Five factor. The 10 items in each version were expected to represent one more desirable and one less desirable pole of each Big Five factor. The two versions were distributed equally in every class, with half of the class answering one version, and the other half of the class answering the other half. As a consequence, each adolescent could be nominated on four items per Big Five factor.

To ensure the most reliable nominations, that is, nominations of classmates that, according to the responding adolescent, best fitted each item, within-sex and cross-sex nominations were allowed. Classmates not present during the assessment could also be nominated; self-nominations were not allowed.

Except for the item 'Which students in your class are your best friends', the order in which the classmates were nominated was not important. The factor structure of the sociometric questionnaire and the psychometric properties will be described and discussed extensively in chapter 3, and will, therefore, not be described here.

Peer acceptance was computed for each adolescent by transforming the received nominations on the like-most item into probability scores.

Peer rejection was computed for each adolescent by transforming the nominations received on the liked-least item into probability scores.

Sociometric Data Processing

For each adolescent the raw scores were computed by counting the number of classmates that nominated that adolescent. This was performed by the computer program SUPERSOCSTAT, an adapted version of SOCSTAT (Thissen-Pennings & Ten Brink, 1994). In this computer program it is possible to account for the different numbers of adolescents that have answered the different versions, as well as to compute scores for adolescents who were not present during assessment, but who were nominated by the responding adolescents.

For each adolescent the computer program transformed given nominations into received nominations of classmates. Subsequently, after computing the received nominations the program standardises these scores within class, thereby taking the numbers of adolescents that were absent during assessment into account. In addition, the probability scores (p-scores) are computed, expressing the chance of receiving a number of nominations given the number of students in the class and using the standardized binomial distribution of the nominations (cf. Ten Brink, 1985; cf. Newcomb & Bukowski, 1983). These standard and probability computations were performed separately for each class, given the differences in class sizes that existed.

Mutual nominations, that is, A nominating B and being nominated by B in turn, are also traced by the program, as are cliques, consisting of more than two adolescents nominating one another. Finally, sociometric status types can be computed, using the probability method (cf. Newcomb & Bukowski, 1983) or the standard score method (Coie, Dodge, & Coppotelli, 1982).

In contrast to all other questionnaires, adolescents not present during the classroom assessment could have scores on the sociometric questionnaire, because they could be nominated by the classmates who filled out that questionnaire. This was the case for 174 adolescents, of whom only the sociometric data but no other data (e.g., age or gender) are present.

Psychosocial Adjustment Measures

Adolescents' psychosocial adjustment was measured using a number of measures, some of which were taken from a Dutch nationwide study on adolescent behavior and well-being (Garnefski & Diekstra, 1993). When possible, we used the same formats for coding the data. The different measures that were used in our study captured various domains of adolescent functioning: (1) Addictive behaviors, (2) Psychological well-being, (3) Delinquent and antisocial behavior, and (4) Somatic complaints.

Addictive behaviors assessed four different behavior categories. Smoking cigarettes was measured by the item 'How many cigarettes did you smoke on average per day during the last month'. Adolescents rated the average number of cigarettes on a 9-point scale, (0, 1, 2, 3, 4, 5, 6-10, 11-20, more). The average number of glasses of alcohol (beer, wine, mixed drinks) consumed during the last month was assessed by a 10-point scale (0, 1-2, 3-4, 5-6, 7-10, 11-15, 16-20, 21-30, more). The use of drugs was measured by 4 3-point questions (never, sometimes, frequently), on which the adolescents had to answer whether they had used one of the following drugs during the last year: tranquillizers, soft drugs (like marihuana), mind expanding drugs (like LSD, XTC), hard drugs (like cocaine or heroine). In the study on perceived relational support and adjustment (chapter 4), three user levels were defined: (1) non

users (72%), which were adolescents never having used any of the drugs, (2) experimenters (7%), which were adolescents having used soft drugs sometimes, or one of the other drugs sometimes, and (3) frequent users (3%), which were adolescents having used one or more of the drugs frequently (18% had missing data). In the study on the association of friends and friendships with adolescent perceived support (chapter 5) for design purposes we aggregated these four items into one scale measuring drug use, and which ranged from 0 (never having used any of the drugs) to 8 (having used all of the four drugs frequently). This was done in order to obtain a coding format which was similar to the one used in gambling behaviors. The gambling behaviors were assessed using three 3-point items, asking whether the adolescents had gambled during the last month by playing on a slot-machine, playing a specific kind of lottery (in Dutch 'krasloten'), or playing cards for a lot of money. These gambling behaviors were rated 0 (never), 1 (sometimes), 2 (frequently), and were aggregated into one scale, which ranged from 0 (never) to 6 (having performed all of the three behaviors frequently).

Psychological well-being consisted of five different aspects.

Self-esteem was measured using 7 2-point items (1: agree, 2: disagree) indicating whether the adolescent agreed or disagreed with a certain statement (e.g., 'In general, I have a positive image of myself'). These 7 items were similar to items from the Self-Esteem Questionnaire (Rosenberg, 1979). Four of these items were negatively stated, the other three positively. The reliability of the scale based on these items was $\alpha = .66$.

Worrying about home and *like being at home* were related to the adolescents' perceived home situation. Worrying about home (e.g. 'Do you brood about your siblings at this moment') was measured by 2 items on a 3-point scale, indicating (1) not, (2) a little, and (3) a lot; its reliability was $\alpha = .56$. Like being at home was assessed by 3 2-point items (e.g. 'I don't get along with my mother very well', 1: agree, 2: disagree) and had a reliability of $\alpha = .44$.

Loneliness was measured by 3 2-point items (e.g. 'I feel often lonely', 1: agree, 2: disagree, $\alpha = .46$).

Brooding in general consisted of 8 3-point items, on which the adolescents had to rate whether they brooded about various topics like their physical appearance, relationships, or school performances, indicating (1) not, (2) a little, and (3) a lot. This scale had a reliability of $\alpha = .72$.

Delinquent and antisocial behavior. The frequency of delinquent and antisocial behaviors during the last 12 months was assessed by 21 items representing a wide range of behaviors. Each item was answered on a 7-point scale: never, 1-3 times, 4-6 times, 7-12 times, 13-26 times, 27-52 times, 53 times or more and indicated how often the adolescent had performed each of the behaviors. The items were similar to items used in other studies (e.g., Jessor & Jessor, 1977; Windle, 1992).

In his work Loeber (1990; Loeber et al., 1993; Loeber, Russo, & Stouthamer-Loeber, 1994) has distinguished three types of problem or delinquent behaviors. The first type is called Authority Conflict, and includes such behaviors as truancy, running away, and staying out all night. The second type he calls Covert Delinquency, and concerns behaviors like, for example, shoplifting. The third type is called Overt Delinquency, and includes physical fighting and gang fighting. Principal component analysis of our 21 items revealed three factors that were identical to the three types of delinquent behaviors described by Loeber. In our studies *Authority Conflict* (5 items) consisted of the following behaviors: quarrelling with parents, siblings, teachers, and other students. *Covert delinquency* (12 items) included running away from home, staying out all night without parental permission, theft, and damaging or destroying other people's properties. *Overt delinquency* (3 items) included physical fights and gang fights. The reliabilities of the scales based on these three factors were $\alpha = .65$ for Authority conflict, $\alpha = .90$ for Covert delinquency, and $\alpha = .83$ for Overt delinquency. One item ('Driving a car or motor cycle without a driving license or insurance papers') was dropped because the reliability of the scale to which it belonged on the basis of the principal component analysis, Overt delinquency, was improved (.82 instead of .76), and because of the content of the item which was not in line with the content of the other items.

Somatic complaints. Somatic complaints were assessed by 8 items indicating how often a person had suffered from various somatic complaints (e.g., headaches, sour throat, pain in the stomach) over the past month. The Cronbach's alpha reliability was .76

Nonresponse on the Psychosocial Adjustment measures.

As mentioned, the Psychological Adjustment measures, the Puberty Development Scale, and the questionnaire on bullying involvement varied in the order in which they were presented in the booklets that were handed out at the classroom assessments. Because some of the classes only had one school hour (50 minutes) to fill out the different questionnaires, it is expected that the nonresponse due to too little time is greatest for the last three questionnaires. Therefore, the response and nonresponse for these three questionnaires will be given. We consider the nonresponse to be due to too little time, and not to the adolescents' refusal to answer the questions, when half or less of the items of a specific questionnaire are unanswered in subsequent order, especially when these items are at the end of that questionnaire. For reasons of clarity, only the nonresponse which was, according to the consideration mentioned above, caused by too little time will be given here and with the description of the other two questionnaires concerned (see Table 2.1).

As can be seen from Table 2.1, the number of adolescents responding to the various measures is quite satisfactory. The percentages of adolescents responding on these measures ranged from 80.1 % (Covert delinquency) to 88.6 % (smoking cigarettes). These relatively high percentages also indicate that, although some of the items asked in these measures could

be regarded as relatively 'intimate', for example the items concerning drug use or some delinquent behaviors, most of the adolescents nevertheless answered them.

Puberty Development

Adolescence is a period in life, more than any other period, in which rapid bodily changes occur. These changes are likely to influence the adolescent's feelings, cognitions, and thoughts, as well as are likely to have an impact on societal expectations towards the adolescent (cf. Petersen & Crockett, 1985). Several researchers propose to use puberty development as an index of development, in addition to chronological age (e.g., Petersen, 1988; Stattin & Magnusson, 1990). Following this, we assessed the adolescents' puberty development in order to use it as such an index.

We used a Dutch adaptation of the Puberty Development Scale (Petersen, Crockett, Richards, & Boxer, 1988), consisting of 12 items in the boys version, and 13 items in the girls version. Most items were answered on a 5-point scale indicating (1) no physical changes yet, (2) occurrence in the past six months, (3) occurrence in the last year, (4) occurrence more than one year ago, and (5) occurrence more than two years ago. Two items concerned the actual length of the person and the expected length when full grown. All items were standardized within gender.

On the basis of these items two scales were constructed, with high scores on these scales indicating earlier maturation. The first scale concerned the *pubertal timing* of physical changes, and consisted of 8 items. The reliability was $\alpha = .61$ for the girls and $\alpha = .81$ for the boys. The second scale was based on two items assessing the adolescent's *appreciation of pubertal maturation,* and consisted of 'How do you like the fact that your body is changing and becoming mature?' and 'How do you like the point in time at which you body is changing?'. The reliability of this scale was for the boys $\alpha = .34$, and for the girls $\alpha = .41$.

Table 2.1 shows that the highest nonresponse was on appreciation of pubertal maturation for boys, but the percentage of boys (77.8 %) that had a valid score on this scale was still satisfactory.

Bullying Involvement

Self-reported bullying involvement was assessed using a 14-item questionnaire. This questionnaire was a Dutch translation (Liebrand, Van IJzendoorn, & Van Lieshout, 1990) of the bully/victim inventory of Olweus (1989, 1991). Our questionnaire consisted of 5 4-point items and 9 5-point items that represented three scales developed by Olweus (1989). The first scale was *Exposure to Direct Bullying/ Victimization* (5 items, e.g., 'How often have you been bullied during the last 5 days'), with a reliability of $\alpha = .77$. The second scale concerned *Exposure to Indirect Bullying / Social Isolation*, consisting of 4 items (e.g., 'How often do other students not want to spend the break with you so you stay alone'). This scale had a reliability of $\alpha = .63$. The third scale was *Bullying other Students*, and was formed by 5 items

(e.g., 'How often did you participate in bullying other students during the last five days'); the reliability of this scale was $\alpha = .82$.

Again, the nonresponse was relatively low, with over 85 % of all adolescents having valid scores on the scales (see Table 2.1).

Table 2.1

Nonresponse on Psychosocial Adjustment, Puberty Development, and Bullying Involvement

Scale	Number of items[1]	Average number of items answered	Number of adolescents responding[2]	%
Psychological Adjustment				
Addictive behaviors				
Smoking cigarettes	1		2978	88.6
Drinking alcohol	1		2949	87.7
Using drugs	1		2931	87.2
Gambling	1		2696	81.2
Psychological well-being				
Self-esteem	7 (4)	6.00	2921	86.9
Worrying about home	2 (2)	1.57	2824	84.0
Like being at home	3 (3)	2.57	2968	88.3
Loneliness	3 (3)	2.59	2819	83.9
Brooding	8 (5)	6.51	2864	85.2
Delinquent behaviors				
Authority conflict	5 (3)	4.04	2767	82.3
Covert delinquency	12 (9)	9.82	2716	80.1
Overt delinquency	3 (2)	2.43	2743	81.6
Somatic Complaints	8 (5)	6.75	2829	84.2
Puberty Development[3]				
Pubertal timing - girls	8 (3)	6.28	1200	83.9
- boys	8 (3)	6.40	1592	82.4
Appreciation - girls	2 (2)	1.63	1150	80.4
- boys	2 (2)	1.59	1502	77.8
Bullying Involvement				
Victimization	5 (3)	4.29	2901	86.3
Social Isolation	4 (3)	3.46	2911	86.6
Bullying Others	5 (3)	4.24	2869	85.4

Note. [1] between parentheses the number of items needed to obtain a valid scale score.

[2] indicates number of adolescents out of 3361 who had valid scores on at least the number of items needed to compute the specific scales.

[3] girls $n = 1430$, boys $n = 1931$

Chapter 3

Adolescent Personality Factors in Self-Ratings and Peer Nominations and their Prediction of Peer Acceptance and Peer Rejection

A number of studies have pointed towards the existence of a five-factor model of personality (e.g., John, 1990; McCrae & Costa, 1985, 1987; Goldberg, 1990, 1992).Various types of factor analyses on various types of personality descriptions have shown an underlying five-factor structure or the Big Five: (I) Extraversion, (II) Agreeableness, (III) Conscientiousness, (IV) Emotional Stability, and (V) Openness to Experience or Intellect. Almost all of the initial Big Five studies were based on exploratory factor analyses, but, independent of the factor analytic procedures used, subsequent studies have also shown the same five factors. Goldberg (1990), for example, found virtually identical structures across a variety of methods of factor extraction and rotation.

Only a few studies have focused on the Big Five in adolescents. Digman and co-authors (Digman, 1989; Digman & Inouye, 1986; Digman & Takemoto-Chock, 1981), for example, conducted research on seven- to thirteen-year olds and found evidence for the existence of five factors, which they interpreted as the equivalents of the Big Five factors. Graziano and Ward (1992), adapting the items of Digman and Inouye (1986), found similar factors. Researchers using the California Child Q-set (CCQ; Block & Block, 1980) found seven factors, with five resembling the Big Five factors (John, Caspi, Robins, Moffitt, and Stouthamer-Loeber, 1994; van Lieshout and Haselager, 1994).

The studies on the personality of adolescents in terms of the Big Five are nevertheless based on the ratings or scorings of adults (i.e., teachers or parents). That is, very little is known about the personality of adolescents in terms of the Big Five as perceived by the adolescents themselves. There are virtually no studies on the Big Five using self-ratings or peer evaluations by the adolescents themselves. The sole exception appears to be the above-mentioned study by van Lieshout and Haselager (1994), in which also CCQ self-descriptions and CCQ descriptions by a best friend were factor analyzed. The factors Agreeableness, Emotional Stability, and Conscientiousness were clearly identifiable both in the self- and peer-descriptions. The Openness factor also emerged in the peer descriptions, while aspects of Extraversion were clearly present in the self-descriptions. The results of this study suggest that adolescents do not use the same Big Five personality factors in self- and peer-evaluations as adults do. The first question in the present study was, therefore, whether exploratory and confirmatory factor analyses of adolescent self-ratings on personality would produce the same Big Five personality factors as for adults' self-ratings.

The second purpose of the present study was to examine peer descriptions of the personality of adolescents. In adults, the Big Five factors have been observed in both self-report data and so-called other-report data, which is usually based on ratings by spouses or best friends (e.g., Cattell, 1957; Goldberg, 1990, 1992 ; McCrae & Costa, 1985, 1987). One other-report method often used with children and adolescents in school classes is the peer nomination measurement. Using this method, information on a wide variety of personal and interpersonal characteristics can be gathered, including sociometric status (e.g., Coie, Dodge, & Coppotelli, 1982; Newcomb & Bukowski, 1983), children's depression (Lefkowitz & Tesiny, 1980), and level of aggression (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976). The peer-nomination procedure as a method for measuring personality dimensions in terms of the Big Five has not been frequently explored, however. In one study (Norman, 1963), rating groups were formed among four samples of male college students varying in length and intimacy of acquaintance. Each rating group was administered a set of 20 bipolar nomination scales with four scales per Big Five factor. Each person in a rating group had to nominate one-third of the other members of his rating group to the positive pole of each scale, and one-third to the negative pole. Norman found five relatively orthogonal, highly interpretable, personality factors or the Big Five factors. These factors emerged independent of the length and depth of the contact between subjects. Moreover, Norman concluded that the forced-choice nomination method rather successfully eliminated any general evaluative tendencies. Using peer nominations, Norman distinguished "differential aspects of personality as clearly and as independently of 'desirability' or 'evaluation' effects as possible" (p. 579). Use of relatively large numbers of classmates as judges of adolescent personality characteristics can be expected to produce more reliable personality assessments when compared to adolescents' self-reports and peer-reports by best friends. Classmates generally know each other across a long period of time, under circumstances that are salient to them, and with regard to a wide range of behaviors and personality characteristics, even infrequent and subtle personality features. We also expected self-report personality dimensions to be highly related to the peer-reported personality dimensions.

Our final question was whether the factors derived from the self-ratings and peer nominations would have predictive validity for peer rejection and acceptance. With concern emerging about rejected children and adolescents as a risk group, the need for greater information on the correlates of peer acceptance and peer rejection, or sociometric status, becomes clear. Much of the research on these correlates has been based on the perception of peers and measured by peer nominations in school classes. Not only peer perceptions but also a person's self-concept play an important role in acceptance or rejection by peers, however. That is, a person's behavior is perceived by peers and evaluated by them in terms of group goals, and is, therefore, expected to be related to peer acceptance and peer rejection. On the basis of this evaluation, peers give feedback to the person and such acceptance or rejection can affect the person's self-esteem (Boivin, Vitaro, & Gagnon, 1992; Patterson, Kupersmidt, & Griesler,

1990). For example, not only self-esteem (e.g., Boivin & Bégin, 1989; Harter, 1982) but also self-perceived competence (e.g., Hymel, Rubin, Rowden, & LeMare, 1990; Patterson et al., 1990) was found to be lower for unpopular children than for popular children. In other words, the subjective self-experience of people and their self-concept is likely to be related to sociometric status (Asher, Parkhurst, Hymel & Williams, 1990).

In sum, the present study had several purposes: (1) to investigate the factor-robustness of the Big Five model in adolescents using exploratory and confirmatory factor analyses of personality self-ratings; (2) to investigate this robustness using exploratory factor analyses of peer nominations with regard to personality; (3) to investigate how the dimensions emerging from the peer nominations relate to those from the self-ratings; and (4) to provide information on the relation between the self-rating factors, peer nomination dimensions, and peer acceptance and rejection. We expected the Big Five factors to emerge from the adolescents' self-ratings. According to Norman (1963), the Big Five factors should also emerge from the peer nominations. We also expected the self-rating factors to substantially contribute to the prediction of peer acceptance and rejection, additional to the contribution of the peer nomination factors to this prediction.

Method

Participants

Participants were 2001 students (885 girls, 1116 boys) attending 43 second- and 44 third-year secondary school classes in the Arnhem-Nijmegen region in The Netherlands . The age of the students ranged from 12 years to 18 years (M = 14.5 years, SD = 9 months). Five per cent of the students considered themselves minorities (1.5% came from Surinam, the Netherlands Antilles, or the Molucca Islands; 2% from Mediterranean countries; and 1.5% from other countries).

Measures

Self-ratings. The personality self-ratings consisted of a set of 25 Dutch bipolar items, with each of the Big Five factors putatively represented by five items. The items were taken from three sources: (1) an older Dutch test measuring the five personality factors (Elshout & Akkerman, 1975), (2) the Big Five items in the Dutch translation of the CCQ (van Lieshout & Haselager, 1994), and (3) Dutch translations of Goldberg's markers (Goldberg, 1992). The items were constructed in two steps. First, five facets of each personality factor were distinguished. For example, for Extraversion-Introversion the facets social activity, expression of feelings and thoughts, verbal activity, motor activity, and initiative were distinguished. Second, a bipolar item was worded for each facet of the five personality factors, based on items from the three available sources. For example, the social activity facet of Extraversion-Introversion was worded for self-rating as follows: "likes being with others" versus "shy, reserved". (For specific item descriptions, see Table 3.1). The 25 items were ordered quasi

randomly in such a way that each item associated with the same factor was separated by items from the other factors. The direction of the scales was counterbalanced with half of the desirable poles placed on the right side and half of the desirable poles placed on the left side. The 7-point scale ranged from (1) *Pole A very true* to (7) *Pole B very true,* with (4) *both Pole A and Pole B a little bit true* in between.

Peer nominations. The peer nominations with regard to personality attributes were assessed using peer nomination items. A minimum of ten nominating students per class was considered sufficient to produce reliable nomination scores. The range of nominations received per item could thus vary from 0 (nominated by no classmates) to 10 (nominated by 10 classmates). The classes had an average of 23 students which allowed us to use two versions of the peer nomination scale. Each version consisted of ten unipolar nomination items. The reason for using 20 items instead of the 50 present in the self-descriptions (i.e., 25 bipolar items equals 50 unipolar items) was that 50 items would take too long for the students to answer, and as a consequence would lead to a lack of concentration and motivation, as was shown in a pilot study. The 20 items that were finally selected for use, were derived from the 25 bipolar items of the self-ratings. Each of the 20 nomination items consisted of a vignette representing either two desirable or two undesirable poles from the same Big Five factor. The nomination items were worded in such a way that the 20 unipolar items covered the content of all 25 bipolar items. For example, the item covering the undesirable poles for the social-activity and verbal-activity facets of Extraversion - Introversion was worded as follows: 'Which students in your class are shy and reserved? They are silent and quiet'. (For a short description of the 20 peer nomination items, see Table 3.3). In each version of the nomination scale, each of the Big Five factors was represented by one desirable and one undesirable item. Each target person could thus be nominated on four items per Big Five factor, with one desirable and one undesirable item per version of the nomination scale. Each version was used by half of the target person's classmates.

Participants were presented a list with the names of all the students in their class. Each name was followed by a code number. They were asked to write down the code numbers of those classmates who best fit each of the items, with a minimum of three and a maximum of five classmates per item. To ensure nomination of those peers best fitting each of the items, cross-sex nominations as well as nominations of classmates not present during the assessment were allowed. Self-nominations were not allowed. The scores for each participant on each item were determined by summing all of the nominations received from classmates on that item. These scores were transformed into probability scores (p-scores) within class, using the binomial distribution, in order to adjust for different numbers of nominators in the classes and for the different versions. The p-scores of the nomination items were used in subsequent analyses.

Sociometric status. Participants were asked to nominate three to five classmates who they liked most (peer acceptance) and three to five classmates who they liked least (peer rejection). The like-most and like-least scores for each subject were computed by tallying the number of nominations received and transforming these scores into p-scores.

Procedure

Trained research assistants administered all of the measures in each of the 87 classrooms during regular class hours. All of the classes were visited in the autumn and winter of 1994. Students participated on a voluntary basis; one student refused to participate. Information about the procedures and the instructions were read aloud. Students' questions were answered whether before, during, or after administration. If the teachers remained in the classroom, they were requested not to interfere with the procedure.

Results

Factor Analyses of Self-Ratings and Peer Nominations

Self-ratings. The first purpose of our study was to investigate the factor robustness of the Big Five factor model for adolescent self-ratings. Principal component analysis with varimax rotation revealed five factors with eigenvalues greater than 1.00, the eigenvalues being 5.11, 2.08, 1.15, 2.55, and 1.44 for Factors I, II, III, IV, and V, respectively. A forced six- and seven-factor solution resulted in the splitting of Factors III and V. The five-factor solution thus seemed most appropriate to represent the data. In Table 3.1, these five factors are presented.

Table 3.1

Varimax Rotated Factor Loadings of the 25 Bipolar Self-Report Items on the Five Personality Factors

	Factor				
Item Numbers and Item Poles Descriptions	I Extraversion	II Agreeableness	III Conscientiousness	IV Emotional Stability	V Openness/ Intellect
1. shy, reserved - likes being with others (-)	**.72**	.25	-.00	.17	-.02
6. inhibited, withdrawn - spontaneous (-)	**.69**	.17	.08	.08	.07
11. silent, quiet - talkative, wordy	**.79**	.01	-.12	.03	.06
16. passive, lethargic - energetic, enthusiastic (-)	**.61**	.19	.10	.07	.26
21. cautious, watchful - daring, demonstrative	**.65**	-.08	-.15	.23	.11
2. egocentric, selfish - considerate (-)	.03	**.75**	.06	-.04	.08
7. quarrelsome, combative - gets along well with others (-)	.27	**.61**	.04	.17	.03
12. blaming others, abusive - helpful, cooperative	.06	**.62**	.07	-.02	.12
17. irritable, envious - honest, sincere	-.00	**.66**	.16	.07	.16
22. unsympathetic, unfriendly - sympathetic, friendly (-)	.19	**.68**	.11	.06	.15
3. lazy, slothful - hard working (-)	-.06	.26	**.72**	.01	.08
8. absent-minded, negligent - able to concentrate	-.23	.14	**.51**	.35	.07
13. careless, sloppy - precise, concise	-.02	.28	**.61**	.05	.04
18. unambitious - thorough (-)	.13	-.21	**.65**	-.16	.24
23. gives up easily - persistent, tenacious	.12	.14	.29	.29	**.48**
4. tense, panicky - calm, relaxed	.00	.04	-.06	**.74**	.18
9. insecure, worried - secure, self-confident	.34	.10	.10	**.63**	.15
14. nervous - stable, resilient	.05	.03	.05	**.73**	.08
19. anxious, fearful - fearless (-)	.23	.06	-.07	**.57**	.14
24. emotional, unsteady - unemotional, steady (-)	.06	-.03	.07	**.65**	-.01
5. unintellectual, unreflective - sensible	.03	.21	.21	.22	**.43**
10. dull, uncreative - intelligent, creative (-)	.06	.19	.06	.10	**.70**
15. unimaginative - imaginative	.19	.12	-.18	.01	**.67**
20. imperceptive - perceptive, insightful	.13	.10	.05	.31	.38
25. uninquisitive - curious, inquisitive (-)	.00	-.00	.22	.05	**.59**

Note. Loadings > |.40| printed in bold.

(-): items inverted

Twenty-three of the 25 bipolar items had a loading higher than .40 on their expected factor, and no loading higher than .40 on any other factor. Item 23 (gives up easily vs. persistent, tenacious) had a primary loading of .48 on the factor 'Openness/ Intellect', and a secondary loading of .29 on the expected factor 'Conscientiousness'; item 20 (imperceptive vs. perceptive, insightful) had a highest loading on the expected factor of .38. The five factors accounted for 49.3% of the total variance. The Cronbach's alpha reliabilities of the five a priori scales were moderate to high: Extraversion: $\underline{\alpha}$ = .77, Agreeableness $\underline{\alpha}$ = .74, Conscientiousness $\underline{\alpha}$ = .60, Emotional Stability $\underline{\alpha}$ = .74, and Openness/ Intellect $\underline{\alpha}$ = .59.

Confirmatory factor analyses (CFA) were conducted with the LISREL program (Jöreskog & Sörbom, 1989). It is now widely recognized that goodness-of-fit indices based on the Chi-square statistic are sensitive to sample size, and will almost always lead to a rejection of the model in the case of large samples. As an alternative, the Chi-square/df-ratio has been proposed and incremental fit indices have been developed, such as the Normed Fit Index (NFI: Bentler & Bonett, 1980) and the Tucker-Lewis Index (TLI: Tucker & Lewis, 1973). These indices compare the designated model with a null model of independence among all variables. Generally, the use of multiple fit indices is recommended. It has been suggested that Chi-square/df-ratios of 2:1 to 5:1 and values greater than .90 for LISREL's Goodness-of Fit Index (GFI), Bentler and Bonett's NFI, and Tucker and Lewis' TLI, may be regarded as indicators of an acceptable fit. The results of the confirmatory factor analyses are presented in Table 3.2.

Table 3.2

Goodness-of-Fit Indices for the Confirmatory Factor Analyses on the Five Factor Model of Self-Ratings of Personality

		Absolute Indices					Relative Indices	
Model	Description	Chi^2	df	Chi^2/df	GFI	RMS	NFI	TLI
A	Null model, no common factors	10563.04	300	35.21	.512	.191	--	--
B	Simple structure, orthogonal factors	3444.59	275	12.53	.849	.140	.67	.66
C	Model B with secondary loadings > |.40|	3165.08	274	11.55	.865	.136	.70	.69
D	Model B with secondary loadings > |.30|	2836.93	271	10.47	.877	.129	.73	.72
E	Model B with secondary loadings > |.20|	1826.03	256	7.13	.920	.102	.83	.82
F	Model B with secondary loadings > |.15|	1277.50	241	5.30	.945	.078	.88	.87
G	Simple structure, oblique factors	2106.45	265	7.95	.911	.067	.80	.80
H	Model G with secondary loadings > |.40|	1838.99	264	6.97	.923	.059	.83	.83
I	Model G with secondary loadings > |.30|	1754.28	262	6.70	.926	.058	.83	.83
K	Model G with secondary loadings > |.20|	1354.68	254	5.33	.943	.049	.87	.87
L	Model G with secondary loadings > |.15|	1057.83	246	4.30	.954	.040	.90	.90

Note. GFI = Goodness-of-Fit Index, RMS = root-mean-square; NFI = Bentler-Bonett Normed Fit Index; TLI = Tucker-Lewis Index.

All models converged on a solution within a small number of iterations; no serious problems were encountered during estimation; all of the variances were positive and none of the standardized coefficients exceeded 1.00.

In conducting the CFAs with the Five Factor Model, we started with models containing only the primary loadings and stepwise included secondary loadings until our model showed a satisfactory fit. Borkenau and Ostendorf (1990) have shown that a large improvement of fit can be achieved by assuming an oblique instead of an orthogonal structure and we, therefore, followed a stepwise strategy for both orthogonal and oblique factor solutions. The secondary loadings added in subsequent steps are taken from the results of the exploratory factor analyses, with either an orthogonal or oblique solution. For this reason, in addition to the null model (Model A) of no common factors, Table 3.2 shows two further classes of models. Models B to F are based upon an orthogonal factor solution, while models G to L are based upon an oblique factor solution. Both classes of models contain an increasing number of secondary loadings.

Table 3.2 shows that, although an increasing number of secondary loadings for the orthogonal models always leads to a significantly better fit, even the final orthogonal model (Model F) does not fit acceptably. For the oblique models, an increasing number of secondary loadings also leads to significant improvements of fit and the final oblique model (Model L) shows an acceptable fit. For the analyses with five orthogonal factors, in the final model (Model F), five items showed a unique loading on their designated factor, eight items had one secondary loading greater than |.15|, ten items had two secondary loadings, and two items had three secondary loadings (see Table 3.1 for the factor loadings). For the analyses with five oblique factors, in the final model (Model L), ten items showed a unique loading on their designated factor, twelve items had one secondary loading, two items had two secondary loadings, and one item (item 18: 'unambitious vs. thorough') showed secondary loadings on all factors. Similar solutions were found when CFA was performed on randomly selected independent halves (n = 1000) of the total sample. The Goodness-of-Fit-Index for Model L varied from .93 to .95 for the various solutions; the Bentler-Bonett Normed Fit Index and the Tucker-Lewis Index ranged from .85 to .89 and .87 to .91, respectively.

Peer nominations. The second purpose of our study was to investigate the factor robustness of the Big Five factor model for the 20 peer nominations on personality. Again, an exploratory factor analysis with varimax rotation was conducted. Following Norman (1963), we expected the Big Five factors to emerge. The results of these analysis can be found in Table 3.3. Principal component analysis suggested five factors with eigenvalues greater than 1.00. The eigenvalues were 3.96, 3.41, 1.97, 1.22 , and 1.14 for the factors 1 through 5, respectively. These five factors accounted for 58.5% of the total variance. A forced six-factor solution resulted in a sixth factor that consisted of only one item, with the other factors resembling the five factors in the initial five-factor solution. In a forced seven-factor solution

Factor 2 was found to split, the seventh factor again consisted of one item, and the remaining factors resembled the factors in the initial solution. Principal component analysis on randomly selected independent halves (n= 1000) of the total sample also revealed five factors; Tucker's coefficient of factor congruence among corresponding factors ranged from .97 to .99. The five-factor solution thus seemed most appropriate to represent the data. In contrast to the self-rating factors, however, the five factors revealed here did not represent the Big Five factors.

Factor 1, called *Aggression - Inattentiveness,* consisted of five items: 'is quarrelsome, blaming others', 'is lazy, unambitious', 'is unreflective, unintelligent', 'is absent-minded, gives up easily', and 'is irritable, unfriendly'. This factor accounted for 19.8% of the total variance. Factor 2, called *Achievement-Withdrawal*, explained 17.0% of the variance and contained five items: 'is able to concentrate, persistent' , 'is hardworking, precise', 'is shy and reserved, silent', 'is relaxed, resilient', and 'is withdrawn, inhibited'. All five items had a positive loading on the second factor. Factors 3 and 4 accounted for 9.8% and 6.1% of the variance, respectively. The four items loading on Factor 3, labelled *Self-Confidence,* were: 'is sensible, perceptive', 'is secure, steady', 'is cooperative, sincere', and 'is spontaneous, demonstrative'. Factor 4, called *Sociability*, was formed by the three items 'is enthusiastic, likes being with others', 'is considerate, friendly' and 'is intelligent, imaginative'. Factor 5, called *Emotionality-Nervousness*, explained 5.7% of the variance and consisted of three items: 'is emotional, anxious', 'is uncreative, unimaginative' and 'is nervous, insecure'. Cronbach's alpha reliabilities for the implied factor scales were .75, .71, .69, .64, and .54 for the factors 1 through five, respectively.

Table 3.3

Varimax Rotated Factor Loadings of the 20 Peer Nominations

Item Numbers* and Item Descriptions	Big Five Personality Factor	Peer Nomination Factor 1	2	3	4	5
7/12. quarrelsome, blaming others	II-	**.76**	-.07	.09	.08	-.08
3/18. lazy, unambitious	III-	**.75**	-.11	.10	-.02	-.07
5. unreflective, unintelligent	V-	**.68**	-.09	-.12	-.00	.05
8/23. absent-minded, gives up easily	III-	**.60**	-.27	.10	-.10	.29
17/22. irritable, unfriendly	II-	**.55**	-.13	.27	-.11	.25
8/23. able to concentrate, persistent	III+	-.35	**.72**	.07	.04	.11
3/13. hard working, precise	III+	.07	**.61**	.06	.31	-.31
1/11. shy and reserved, silent	I-	-.18	**.61**	-.33	-.22	.32
4/14. relaxed, resilient	IV+	-.31	**.61**	.37	-.13	.20
6/21. withdrawn, inhibited, cautious	I-	-.17	**.53**	-.16	-.32	**.42**
5/20. sensible, perceptive	V+	-.03	.29	**.72**	.10	-.03
9/24. secure, steady	IV+	.18	-.01	**.67**	.25	-.17
12/17. cooperative, sincere	II+	-.31	-.07	**.58**	.27	.00
6/21. spontaneous, demonstrative	I+	.30	-.29	**.57**	.36	-.03
16/1. enthusiastic, likes being with others	I+	.14	-.20	.22	**.74**	-.10
2/22. considerate, friendly	II+	-.29	-.05	.10	**.73**	.05
10/15. intelligent, imaginative	V+	.00	.26	.21	**.62**	-.06
24/19. emotional, anxious	IV-	.01	-.00	.06	.01	**.80**
10/15. uncreative, unimaginative	V-	.27	.16	-.10	-.30	**.60**
14/9. nervous, insecure	IV-	.05	.16	-.38	.19	**.55**

Note. All loadings < |.40| are printed in bold. N = 2113. Big Five personality factors: I= Extraversion, II = Agreeableness, III= Conscientiousness, IV= Emotional Stability, V= Openness/ Intellect. Peer nomination factors: 1= Aggression-Inattentiveness, 2 = Achievement-Withdrawal, 3 = Self-Confidence, 4 = Sociability, 5 = Emotionality-Nervousness.

* : Item numbers correspond to those for self-rating items.

Canonical Correlations

The third purpose of our study was to examine the relation between the Big Five self-rating factors and the five peer nomination factors. Canonical correlation analyses were undertaken to do this. Two canonical correlations were found to explain 94% of the variance between the two sets of variables. The first canonical correlation between self-rating factors and peer nomination factors was .58. The highest correlations on the pair of canonical variates were (a) in the self-rating set: Extraversion (.92), and (b) in the peer nomination set: Achievement-Withdrawal (-.84), Aggression-Inattentiveness (.63), and Self-Confidence (.48). The second canonical correlation between the self-rating factors and peer nomination factors was .27. The correlations on this pair of canonical variates were (a) in the self-rating set: Agreeableness (.74), and (b) in the peer nomination set: Sociability (.73) and Aggression-Inattentiveness (-.65). All of the other correlations on both pairs of canonical variates were below |.45|. A canonical correlation analysis between the separate 25 self-rating items and the 20 peer nomination items did not show any additional, highly interpretable results.

Regression analyses

The fourth purpose of our study was to investigate how the Big Five self-rating factors and the peer nomination factors predicted peer acceptance and peer rejection. To test the independent contributions of the self-rating factors, on the one hand, and of the peer nomination factors on the other hand, two hierarchical multiple regression analyses were performed for each dependent variable. In the first analysis, self-rating factors were entered in step 1 and the peer nomination factors in step 2. This analysis estimated the contribution of the peer nomination factors in the prediction of peer acceptance and peer rejection, after the contribution of the self-rating factors had been controlled for (see upper panel of Table 3.4). In the second analysis, peer nomination factors were entered in step 1 and self-rating factors in step 2. This analysis estimated the contribution of the self-rating factors to the prediction of peer acceptance and peer rejection, after the contribution of the peer nomination factors had been controlled for (see lower panel of Table 3.4). A number of Big Five personality factors and peer nomination factors turned out to be significant predictors in that they had significant beta-coefficients. It should be noted, however, that significance is highly dependent in these analyses on sample size, allowing small beta-coefficients to reach significance in big samples. In our sample, which consisted of more than 2000 adolescents, a beta-coefficient of .08 turned out to be significant at the $p < .001$ level.

Table 3.4
Multiple Regression Analyses Predicting Peer Acceptance and Peer Rejection from Self-Rating Factors and Peer Nomination Factors on Personality Attributes

	Peer Acceptance					Peer Rejection				
	R^2 Change	R^2	F Change	Beta	r	R^2 Change	R^2	F Change	Beta	r
Analysis 1										
Self-ratings	.07	.07	27.03***			.03	.03	10.59***		
Extraversion				.19***	.20**				.04	.01
Agreeableness				.16***	.17**				-.18***	-.13**
Conscientiousness				-.04	-.02				.03	.01
Emotional Stability				-.02	.03				-.01	.01
Openness /Intellect				-.10***	-.01				.08**	.04
Peer Nominations	.36	.43	247.72***			.28	.31	156.73***		
Aggression-Inattentiveness				-.13***	-.11**				.42***	.43**
Achievement- Withdrawal				-.15***	-.17**				.10***	-.00
Self-Confidence				.31***	.50**				-.08***	-.16**
Sociability				.37***	.55**				-.17***	-.27**
Emotionality - Nervousness				-.09***	-.29**				.18***	.33**
Analysis 2										
Peer Nominations	.42	.42	281.44***			.30	.30	164.35***		
Aggression- Inattentiveness				-.15***					.42***	
Achievement- Withdrawal				-.14***					.09***	
Self-Confidence				.30***					-.07**	
Sociability				.37***					-.17***	
Emotionality - Nervousness				-.09***					.18***	
Self-Ratings	.01	.43	6.45***			.01	.31	5.36***		
Extraversion				-.05*					.05*	
Agreeableness				.08***					-.06**	
Conscientiousness				-.02					.07**	
Emotional Stability				.03					-.06**	
Openness / Intellect				-.08***					.04	

Note. * $p < .05$; ** $p < .01$; ***$p < .001$.

Peer nomination factors. As can be seen from Table 3.4, the peer nomination factors in the regression analysis on peer acceptance accounted for 42% of the variance when entered first (Analysis 2). When entered in step 2 after the self-rating factors (Analysis 1), the peer nomination factors accounted for an additional 36% of the variance. All five peer nomination factors contributed significantly to the prediction of peer acceptance, both when entered first and when entered second. In the prediction of peer acceptance, Sociability and Self-Confidence were most predictive. This suggests that adolescents accepted by their peers tend to be perceived as being enthusiastic and enjoying being with peers, as being considerate and friendly, as being intelligent and imaginative, as being sensible and perceptive, as being secure and steady, cooperative and sincere, and as being spontaneous and demonstrative. In the prediction of peer rejection, 30% (when entered first, Analysis 2) and 28% (when entered second, Analysis 1) of the variance was predicted by the peer nomination factors. Aggression-Inattentiveness turned out to be the strongest predictive factor. This suggests that adolescents rejected by their peers tend to be perceived as being quarrelsome and blaming others, as being lazy and unambitious, as being unreflective and unintelligent, as being absent-minded and giving up easily, and as being irritable and unfriendly. Subsequent regression analysis at the item level (i.e., with the 20 items instead of the five factors as the predictors) did not make any interpretive difference. The items forming the factors Sociability and Self-Confidence primarily contributed to the prediction of Acceptance, while the items of Aggression-Unattentiveness substantially contributed to the prediction of Rejection.

Self-rating factors. We next investigated the contribution of the Big Five self-rating factors to the prediction of peer acceptance and peer rejection. In the prediction of peer acceptance, the self-rating factors explained 7% of the variance when entered first (Analysis 1). Extraversion and Agreeableness were most predictive, indicating that those adolescents who perceived themselves as being talkative, energetic, spontaneous, daring, and also considerate, friendly, helpful and getting along well with others were most accepted by their peers. Openness / Intellect turned out to be negatively related to peer acceptance. That is, those who rated themselves higher on intelligence, imagination, curiosity, and sensibility were less accepted by their peers. When entered in step 2 (Analysis 2), the self-rating factors added 1% to the explained variance. The same three factors that had contributed significantly in step 1 were still significant, although to a lesser degree. In the prediction of peer rejection, 3% of the variance was explained by the self-rating factors when entered first (Analysis 1). Agreeableness turned out to be the strongest predictor, in that adolescents who perceived themselves as being considerate, friendly, helpful, and getting along well with others were less rejected by their peers. Openness/ Intellect also contributed significantly to the prediction of peer rejection, indicating that scoring higher on self-perceived intelligence, imagination, curiosity, and sensibility was related to peer rejection. Entering the self-ratings in step 2 (Analysis 2) added 1% to the explained variance. Agreeableness, although still significant, seemed to have lost

much of its predictive power; Extraversion, Conscientiousness, and Emotional Stability, in contrast, proved to be significant now as well; and Openness/ Intellect was the only Big Five factor not contributing significantly to the prediction of rejection. The latter results suggest hat those adolescents most rejected tended to be more extraverted (i.e., liked being with others more; were more spontaneous, talkative, energetic and daring), less agreeable (i.e., less considerate, helpful, friendly; less honest, and got along with others less well), more conscientious (i.e., more hard-working, more able to concentrate, and more precise, thorough, and persistent), and showed less emotional stability (i.e., more tensed, insecure, nervous, anxious, and unsteady). Again, regression analysis at the item level did not make any interpretive difference.

Discussion

Self-ratings

Our major goal was to investigate the factor robustness of the Big Five personality model for adolescent self-ratings and peer nominations. Adolescent self-ratings indeed revealed five factors identical to the Big Five factors found in the literature on adults self- and peer-descriptions. The existence of the Big Five personality factors in the adolescent self-ratings shows that not only expert adults (i.e., teachers, parents) use these factors to describe adolescents' personality (e.g., Graziano & Ward, 1992), but also the adolescents themselves. The demonstration of the Big Five personality structure in adolescent self-ratings is promising for future research on personality in adolescence. Adolescent self-ratings in Likert-type scales defined by opposite adjective pairs produce the full Big Five factor structure, while use of more clinical items in more complicated procedures such as the Q-sorting for self-descriptions resulted in only three of the five factors (cf., van Lieshout & Haselager, 1994).

Compared to exploratory methods, confirmatory factor analysis is more flexible (e.g., in specifying which variables should load on which factors) but possibly also more restrictive, when even small secondary loadings are not permitted. A perfect simple structure, however, is not postulated by the Big Five factor model (McCrae, Zonderman, Costa, Bond, & Paunonen, 1996). Hofstee, De Raad, and Goldberg (1992), and Wiggins (1979) found that most trait indicators fell between two or three orthogonal axes. They proposed circumplex models in which traits have meaningful loadings on more than one factor. Also Church and Burke (1994), pointing to this multifactorial character of personality items, provided a satisfactory fit in their confirmatory factor analysis by permitting secondary loadings.

The five factors that emerged from the exploratory analysis of our self-ratings were successfully replicated in a confirmatory factor analysis when the restriction of variables loading on only one factor was dropped. The more restrictive model -- that is five orthogonal factors with uniquely loading variables-- was not a proper representation of the five-factor structure underlying our data and did not thus, reach a satisfactory fit. Like other authors (cf., Borkenau and Ostendorf, 1990; Hofstee et al., 1992; McCrae et al., 1996), we think that the

majority of personality traits have loadings on one to three factors. Even when these secondary loadings are small, as was found to be the case in our study, the simple structure is only approximate. A satisfactory representation of the five factor structure of adolescent self-ratings of personality was therefore found when the secondary loadings greater than |.15| were permitted and an oblique factor structure was allowed.

Peer nominations

One of the merits of peer nomination is that it allows all group members to provide information on a particular target person. Instead of being rated by only one or two other peers, as is the case in adult ratings of spouses or best friends, the nomination method allows a target person to be nominated by all group members on each item. Particularly in the case of a forced number of nominations, group members have to be compared with each other and a reference group for the description of a group member is provided. In other words, peer nominations reflect the position of a member of a group on an attribute, relative to the other members of the group. By pooling the responses of multiple group members, potentially biased information for any particular peer is also likely to be controlled for (Cole & White, 1993).

However, even though the content of the peer nomination items in our study was very similar to the content of the self-rating items, the exploratory factor analysis on peer nominations did not yield the expected Big Five factors. This was surprising in light of the fact that Norman (using peer nominations) and many others (using spousal or best-friend peer ratings) have found these factors. There are two possible explanations for our alternative finding.

The first explanation is a methodological one. The nomination procedure results in a large number of subjects per class receiving zero nominations and a small number of subjects receiving relatively many nominations. This will lead to a skewed distribution of (received) nominations, and in turn, affect the correlations between the nominations on positive and negative statements. In other words, not finding the Big Five factors in peer nominations, using items similar to the self-rating items for which the Big Five did emerge may simply be a methodological problem. In our study, however, the received nominations were transformed using the binomial distribution into probability scores with a normal distribution. Exploratory factor analysis on these probability scores should therefore have revealed the Big Five factors.

The second explanation concerns the content of the factors revealed by the exploratory factor analysis. Examination of the five factors shows that they are highly interpretable and that some of them resemble the factors found in other studies. In their Revised Class Play (RCP) study, Masten, Morison, and Pelligrini (1985) asked children to nominate one classmate on each of 15 positive and 15 negative roles, referring to the interpersonal domain. Factor analysis revealed three factors, one of positive valence labelled Sociability-Leadership and two of negative valence labelled Aggressive-Disruptive and Sensitive-Isolated, respectively. The three factors represented three dimensions of peer reputation. These factors have been replicated in a

number of other studies using the same RCP items (e.g., Chen, Rubin, & Sun, 1992; Morison & Masten, 1991). It appears that children and adolescents who had to nominate peers on different behaviors and characteristics related to the interpersonal domain evaluated group members in terms of several dimensions of social competence in groups. In other words, nominating peers implies an evaluative process in which peer behavior and characteristics are perceived in relation to the goals and norms of the group.

In our study, adolescents scoring high on Factor 1, Aggression-Inattentiveness, are perceived as being particularly aggressive and disruptive and also being inattentive. This factor therefore resembles the Aggressive-Disruptive dimension found by Masten and colleagues (Masten, Morison & Pelligrini, 1985; Morison & Masten, 1991). Adolescents scoring high on Factor 2, Achievement-Withdrawal, are oriented towards achieving high personal standards of excellence and are likely to be hard-working and conscientious; at the same time they may be socially reserved, shy, and inhibited. This factor pertains to the personal achievement orientation of socially inhibited individuals and is therefore similar to the RCP dimension Sensitive-Isolated. Academic achievement orientation and social inhibition appear to be frequently associated in several recent studies of adolescence (e.g., Wentzel & Asher, 1995; Masten et al., 1995). Factor 3, Self-Confidence, and Factor 4, Sociability, are the only two factors with a positive valence. Scoring high on these factors implies being perceived as smart, secure, and cooperative (Factor 3) and perceived as enthusiastic, considerate, and friendly (Factor 4). Both factors seem to relate to the Sociability-Leadership dimension found by Masten, Morison, and Pelligrini (1985). Factor 5, finally, contains items indicating that the person is perceived as emotionally labile, nervous and uncreative. The fact that five instead of three factors emerged in our study is probably due to the restriction of the items in the RCP studies to the interpersonal domain. The item pool in our study was more extensive and included items on achievement, intelligence, and conscientiousness.

According to Digman, (1990), the Big Five model can be seen as a replicable model of the structure of personality and should not only be found in self-ratings but also in the viewpoint of an observer. This probably applies when observers are explicitly asked to rate their peers' personality. Peer nominations appear to serve a different purpose and measure somewhat different constructs (Gresham, 1981). The peer nomination method in our study did not primarily measure the adolescents' personality (as perceived by peers) but dimensions related to group reputation. This is in line with other studies (e.g., Masten et al., 1985) that show the use of peer nominations in a group context to measure dimensions of group reputation rather than specific personal characteristics of an individual. Nominating peers in existing classes implies that the children evaluate their classmates in relation to all other members of the group and compare them with respect to group goals. That is, what is the contribution of the individual in question to the group atmosphere? To what extent does he or she constitute a threat to the functioning of the group? In other words, group characteristics and not personality features mostly determine the description of a group member.

Self-ratings and peer nominations

Although exploratory factor analyses did not reveal the same factors in the self-ratings and peer nominations, the canonical correlation analysis suggested some relation between the two sets of variables. The rationale behind canonical correlation analysis is to identify statistically independent vectors or factors linking two sets of variables (Levine, 1980). Pairs of linear combinations of factors of the two sets are selected in such a way that one set of variables is maximally correlated to the other set and each pair of linear combinations is uncorrelated to other selected pairs. In the first canonical factor, self-reported Extraversion was highly and negatively linked to peer-perceived Achievement-Withdrawal and highly positively correlated to peer-perceived Aggression-Inattentiveness and to a lesser extent to Self-Confidence. These peer nomination factors pertain on the one hand to the adolescents' orientation on individual standards and on the other hand to items referring to negative salience and group impact. Achievement-oriented and withdrawn adolescents describe themselves as more introverted while aggression and inattentiveness imply a high level of social impact which is very salient in the group. In the second canonical factor, self-reported Agreeableness was positively related to Sociability in the peer nominations. Sociability refers to behavior perceived by peers as considerate and friendly, in other words behavior similar to agreeableness.

Predicting sociometric status

Our last aim was to predict peer acceptance and peer rejection on the basis of self-rating factors and peer nomination factors. Most important in being accepted by peers turned out to be peer-perceived Sociability. Adolescents who express a variety of prosocial behaviors are liked the most, and this is in accord with the sociometric literature (see e.g., Newcomb, Bukowski, & Pattee, 1993). Sociability not only consists of being perceived as a friendly and considerate person but also being evaluated as enthusiastic, intelligent, and imaginative. Adolescents who are perceived as being self-confident are also more accepted. In contrast, adolescents who are perceived as being anxious, emotionally labile, and insecure, (i.e., Sensitive-Isolated in the RCP studies) and/or shy and withdrawn (cf., Boivin et al., 1992; Younger & Daniels, 1992) are likely to be rejected by their peers. Adolescents who are aggressive and inattentive (Aggressive-Disruptive) are also more likely to be rejected by their peers than other adolescents (cf., Chen et al., 1992; Rubin, LeMare, & Lollis, 1990; Rubin & Mills, 1988).

From the self-rating Big Five personality factors, Extraversion and Agreeableness were found to contribute substantially to the prediction of peer acceptance. However, this was the case when only the self-rating factors were taken into account. Neither of these two factors, however, nor any of the other Big Five factors were related substantially to peer acceptance when the peer nomination factors were also included in the prediction. A similar pattern was found in the prediction of peer rejection. When only Big Five factors were included, Agreeableness contributed substantially to the prediction of being rejected by peers. When the

peer nomination factors were also taken into account, however, none of the Big Five personality factors proved to be very relevant for the prediction of peer rejection.

In sum, adolescents appear to evaluate themselves in terms of the Big Five personality factors. The way in which the adolescents perceive and describe themselves does not, however, have a strong relation to being accepted or rejected by their peers in class groups. Peer evaluations in class groups, rather, appear to be based more on the adolescent's contribution to the functioning of the group and not on their individual personality dimensions.

Chapter 4

Relational Support and Adjustment in Adolescence: Dimensions, Types, and Development

In recent years, a number of studies have highlighted the importance of social support for adolescents' psychosocial functioning. For example, social support has been found to be inversely related to such problem behaviors as substance use (e.g., Wills & Cleary, 1996), delinquency (e.g., Windle, 1992), emotional problems (Garnefski & Diekstra, 1996) or low self-esteem (e.g., Van Aken & Asendorpf, 1997). A clear understanding of the effects of relational support on adjustment is nevertheless difficult to obtain. First, different conceptualizations of the support construct limit the generalizability of the results found in many studies. Second, the studies to date have been based exclusively on a variable-centered approach, in which relations between separate dimensions of social support and adjustment are examined across persons. In contrast, a person-centered approach considers individual differences in the configurations of adolescents' perceived support. Finally, the effects of perceived support on adolescents' adjustment have not always been related to such markers of adolescent development as chronological age, school grade level, or pubertal maturation. The goal of the present study was to address each of these limitations.

With respect to the conceptualization of the support construct, three separate models can be distinguished: the functional or provision model, the relationship or provider model, and the integration of these models into an interactional or provision/provider model (cf. Cauce, Reid, Landesman, & Gonzales, 1990). The first aim of our study was to investigate whether a provision or a provider model captures the basic dimensions of adolescent perceived support or how the two models may be intertwined. In the provision model, various functions (e.g., warmth, behavior regulation) are considered most salient with respect to the effects of social support. Different taxonomies of the basic support provisions for specific kinds of stress have been proposed. For example, for financial or work stress, certain specific dimensions of social support could enhance optimal adjustment, but for others, such as medical illness or bereavement, adjustment was only achieved with a broad range of social support dimensions (see Cutrona & Russell, 1990, for a comprehensive overview). In the provision model, the different providers of social support are usually aggregated into a single set, creating a relationship-nonspecific model of support.

The beneficial effects of specific providers may thus be obscured by neutral or contrasting effects of other providers. In the provider model the specific support relationships (e.g., mother, father, sibling, best friend) are most salient, and must therefore be examined both separately and simultaneously for the individual. The provider model encourages comparison of the quality of different relationships and the association of such relationships with important

developmental outcomes (cf. Barrera, Chassin, & Rogosch, 1993). Inquiries based on a provider model nevertheless tend to treat perceived support as a unidimensional phenomenon.

In the provision/provider model (cf. Cauce et al., 1990), the different provisions as well as the different providers are considered. For example, Furman and Buhrmester (1985) investigated children's perceptions of six dimensions of support from each of the following providers: mother, father, grandparent, different siblings, friends, and teachers. Children were found to gain certain types of support from certain relationships, but the relationships were not necessarily unique in the support they contributed. These three models, however, have not often been compared. As one of the exceptions, Cauce et al. (1990) reported that the provision/provider model was most appropriate for examination of the perceived support (Cauce et al., 1990).

In the present study, we distinguished four dimensions of perceived relational support (1) warmth versus hostility in emotional exchanges, (2) respect for autonomy versus setting limits in the regulation of behavior, (3) quality of information versus withholding of information, (4) convergence versus opposition of goals. A fifth dimension was also distinguished to qualify the relationship in general, that is (5) perceived acceptance as a person (cf. Erickson, Sroufe, & Egeland, 1985; Van Lieshout, Cillessen, & Haselager, in press). These dimensions were then compared for four key providers of support for adolescents: mother, father, special sibling, and, if present, best friend.

The first question in our study was just how the provision/provider model manifests itself in adolescents' perceptions of relational support. In order to answer this question, we examined the dimensions of perceived support revealed by confirmatory and exploratory factor analyses on data from four providers (i.e., mother, father, special sibling, best friend) and the preceding five dimensions of perceived support. From a pure provision perspective the perceived support dimensions could be expected to stand out. From a pure provider perspective the different providers could be expected to stand out. We also investigated developmental and gender differences in the factors across the adolescent years under study.

In pursuing the second aim of our study, we followed a person-centered approach instead of the variable-centered approach that was used for the first aim of the study. That is, we investigated the organization or configuration of dimensions of perceived support within persons. The study of such configurations enables one to distinguish different patterns of perceived support for distinctive subgroups or types of adolescents present in the total sample under investigation, for example, subgroups related to age, gender or any other characteristic. For such subgroups specific configurations of support variables may exist, that are obscured, however, when these subgroups are aggregated into one overall sample. With respect to the research on perceived relational support in adolescence, we know of no study that has applied this kind of approach. Our second question, therefore, was whether specific subgroups or types of adolescents could be distinguished according to the configuration of perceived relational support from mother, father, special sibling, and best friend. In order to examine this

possibility, the data on the five dimensions of perceived relational support and the four providers were submitted to a cluster analysis. According to the provision approach, the support dimensions could be expected to distinguish between the various types of adolescents. According to the provider model, differences in the support from the four providers could be expected to be most salient.

Our third and final aim was to examine the adjustment of adolescents with different types of relational support, and how the adjustment was related to adolescent development in terms of chronological age, school grade, pubertal timing, and appreciation of pubertal maturation.

While development in adolescence is a holistic process, different developmental markers seem to be related to different outcomes. Across the life course, chronological age is the first, most general, and perhaps most indispensable marker of development (Rutter, 1989). Chronological age, however, does not index all developmental phenomena in adolescence (Petersen, 1988). School grade, for example, is certainly related to chronological age, but can still be regarded as a second index of development. This is because school grade typically defines what one has learned both academically and socially in terms of norms and expectations (Petersen & Crockett, 1985). Moreover, school classes as a peer group exert group pressure leading to social comparison and conformity (Steinberg, 1993). Adolescents of the same age or in the same grade can differ markedly in their pubertal maturation, however. Pubertal timing as an additional index of development has revealed differences in the adjustment of early and late maturers (e.g., Petersen & Crockett, 1985; Stattin & Magnusson, 1990). In our study, within-gender pubertal timing was based on the adolescents self-reports. In addition, the adolescent's appreciation of his or her pubertal maturation was included as a fourth, more psychological index of development, because adolescent's expectations and evaluations with respect to pubertal maturation are known to affect his or her self-concept (Petersen & Crockett, 1985). Pubertal maturation is an inevitable part of adolescence, and it can be hypothesized that adolescents with negative feelings towards this development may be psychologically less mature than adolescents with more positive feelings.

We examined the contribution of these four different developmental markers to the adjustment of adolescents with different types of support. We estimated the separate contribution of each marker by introducing them in the prediction of each domain of adjustment in the order outlined above, that is, from most general (chronological age) to most specific (appreciation of pubertal maturation). In our study, adjustment consisted of three domains.

First, we examined five dimensions of peer group reputation (that is, Aggression-Unattentiveness, Achievement-Withdrawal, Self-Confidence, Sociability, and Emotionality-Nervousness, cf., Scholte, Van Aken, & Van Lieshout, 1997) and peer acceptance. Only a few studies have examined the association between perceived relational support, development, and peer group functioning in the preschool years (Bost, 1995), elementary school years (East & Rook, 1992), or adolescent years (Wentzel, 1994). In our study, in addition to the effects of the markers of adolescent development, we expected adolescents reporting more favorable

configurations of perceived relational support from their key providers to have more positive scores on the different dimensions of peer group reputation as well as higher scores for peer acceptance than adolescents showing less favorable configurations of perceived support. Second, we examined adolescent personality, using the Big Five personality factors. In adolescents, temperament factors reflecting facets of the Big Five personality factors were related to perceived support from family members (Windle, 1991). We expected the adolescents reporting more favorable configurations of perceived support to have higher scores on all of the Big Five personality factors than adolescents with less favorable configurations of perceived support. Third, we investigated psychosocial adjustment. A number of studies have shown higher levels of perceived support to be associated with more favorable psychological well-being and adjustment as indicated by lower use of cigarettes, alcohol, and marihuana (Wills & Cleary, 1996); positive subjective mental health (e.g., Garnefski & Diekstra, 1996); higher self-esteem (e.g., Van Aken & Asendorpf, 1997); and lower delinquency (Windle, 1991). In sum, perceived support seems to be an important correlate of adolescents' well-being in a number of different domains. We therefore incorporated measures self-concept and feelings as well as measures of more externalized problem behaviors such as substance use and delinquency in our study. We expected adolescents reporting more favorable configurations of perceived support to show more favorable adjustment than adolescents reporting less favorable configurations. Lower substance use, less delinquent behavior, and higher scores on measures of psychological well-being can thus be expected for the former when compared to the latter.

Method

Participants

Participants were 2262 adolescents (1044 girls, 1218 boys) attending 17 first (n = 207, mean age 12.5 years), 42 second (n = 666, 13.4 years), 44 third (n = 685, 14.5 years), and 45 fourth and fifth (n = 704, 15.6 years) grade secondary school classes in the Arnhem-Nijmegen region in The Netherlands. The age of the students ranged from 12 years to 20 years (M = 14.4 years, SD = 1.3 years). Five and a half percent considered themselves to be a minority (1.1% came from Surinam, the Netherlands Antilles, or the Molucca Islands; 2.2% came from Mediterranean countries; 2.2% came from other countries). These subjects were selected from a total sample of 3361 adolescents because they reported having (a) a mother, a father, at least one sibling, and best friend (n = 2104) or (b) the three family members and no best friend (n = 158).

Measures

Perceived relational support. A 27-item self-report questionnaire represented four bipolar dimensions of perceived relational support and a fifth unipolar dimension qualifying the relationship in general (Van Lieshout et al., in press). The dimensions were 1) emotional support: warmth versus hostility (e.g., "this person shows me that he/she loves me" versus "this person ridicules and humiliates me"); 2) respect for autonomy versus setting limits (e.g., "this person lets me decide as often as possible" versus "this person makes decisions that I would like to take myself"); 3) quality of information versus withholding of information (e.g., "this person explains or shows how I can make or do something" versus "this person does not explain why he/she wants me to do or not to do something"); 4) convergence of central and peripheral goals versus opposition of goals (e.g., "this person and I have the same opinions about use of drugs, alcohol, or gambling" versus "this person criticizes my opinions about religion, philosophy of life, or social engagement"). The unipolar dimension concerned 5) acceptance (e.g., "this person accepts me as I am"). The subjects were asked to indicate on a 5-point scale ranging from very true (1) to very untrue (5) with (3) sometimes true, sometimes untrue in between how much each of the 27 items held for the following providers: father, mother, special sibling, and, if present, best friend. "Your special sibling" was described as "the sister or brother that is most important to you" and "your best friend" was described as "a person that, in turn, would nominate you as one of his or her best friends". Romantic partners were not considered best friends.

Pubertal timing and appreciation of pubertal maturation. Using a Dutch adaptation of the Puberty Development Scale (Petersen, Crockett, Richards, & Boxer, 1988) adolescents reported on 12 (boys) or 13 (girls) items the timing of physical changes. These questions were answered on a 5- point scale indicating 1) no physical changes yet, 2) occurrence in the past six months, 3) occurrence in the last year, 4) occurrence more than one year ago, 5) occurrence more than two years ago. The scores were standardized within gender. A high score indicates earlier maturation. The reliabilities for this scale were $\alpha = .61$ for girls and $\alpha = .87$ for boys.

Appreciation of pubertal maturation was assessed using two 5-point scale questions concerning the adolescents' feelings with regard to the physical changes (i.e., "How do you like the fact that your body is changing and becoming mature?" and "How do you like the point in time at which your body is changing?"). The scale ranged from (1) very unpleasant to (5) very pleasant. The reliablities were $\alpha = .41$ for girls, and $\alpha = .34$ for boys.

Peer-group reputation and peer acceptance. Peer-group reputation was based on 20 "Guess who" peer nomination items (Thompson, 1960). The 20 items concerned attributes of an individual's peer-group functioning. Per item, the students had to nominate three to five classmates (see Scholte et al., 1997, for a description of the items). For each subject all of the nominations received from all nominating classmates on that item were summed and

transformed per class into probability scores (p-scores) to correct for unequal numbers of nominating students per class. In our earlier study (Scholte et al., 1997), factor analyses on the 20 items revealed five replicable peer-group reputation factors: *Aggression-Inattentiveness* (e.g., being perceived as quarrelsome, lazy, absent-minded, irritable), *Achievement-Withdrawal* (e.g., being perceived as persistent, hard working, shy, reserved, withdrawn), *Self-Confidence* (e.g., being perceived as sensible, secure, steady, sincere), *Sociability* (e.g., being perceived as enthusiastic, considerate, intelligent), and *Emotionality-Nervousness* (e.g., being perceived as emotional, anxious, nervous, uncreative). The Cronbach's alpha reliabilities for the scales based on these factors were .75, .72, .70, .66, and .55, respectively. Note that the three dimensions found in studies based on the Revised Class Play (e.g., Masten, Morison, & Pelligrini, 1985) are also represented in our five dimensions.

Peer acceptance and peer rejection were based on the two additional questions, "Who do you like most" and "Who do you like least", resulting in probability scores for peer acceptance and peer rejection (cf. Newcomb & Bukowski, 1983).

Big Five personality factors. A self-report questionnaire consisting of 25 bipolar items was used to assess the Big Five personality factors. Subjects were asked to rate on a 7-point scale, ranging from (1) Pole A very true to (7) Pole B very true , with (4) Pole A and Pole B a little bit true in between, how each item held for them. Exploratory and confirmatory factor analyses indeed revealed the Big Five personality factors (Scholte et al., 1997). The Cronbach's alpha reliabilities were .78, .75, .60, .75, and .57 for *Extraversion, Agreeableness, Conscientiousness, Emotional Stability,* and *Openness/Intellect*, respectively.

Psychosocial Adjustment. A number of measures of psychosocial adjustment (i.e., substance use, psychological well-being) were taken from a nationwide study on Dutch adolescent behavior and well-being (Garnefski & Diekstra, 1993), which was constructed on the basis of the Monitoring-the-Future Questionnaire (Bachman, Johnston, & O'Malley, 1987).

Substance use. The average number of cigarettes smoked per day over the past month was measured using a 9-point scale (0, 1, 2, 3, 4, 5, 6-10, 11-20, > 20) . The average number of glasses of alcohol (i.e., beer, wine, mixed drinks) consumed over the past month was measured using a 10-point scale (0, 1-2, 3-4, 5-6, 7-10, 11-15, 16-20, 21-30, 31-50, > 50). Drug use was measured using four 3-point scale (never, sometimes, frequently) questions, indicating how often adolescents had used each of the four types of drugs over the past 12 months: tranquillizers, soft drugs (e.g., marihuana), mind expanding drugs (e.g., LSD, XTC), or hard drugs (e.g., cocaine, heroin). Three user levels were defined: 1) non users, that is, adolescents never having used any of the different types of drugs, 2) experimenters, having used soft drugs sometimes, or one of the other drugs sometimes, and 3) frequent users, having used one or more of the different drugs frequently.

Psychological well-being. Four different measures (with number of items, Cronbach's alphas, and a sample item and scoring between parentheses) were employed to assess the adolescents' psychological well-being. *Worrying about home* (2 items, α = .56, "How much do you feel sad or do you brood about your brothers/sisters", rated on a 3-point scale: not, a little, a lot). *Loneliness* (3 items, α = .46,"I often feel lonely", rated on a 2-point scale: agree, disagree). *Self-esteem* (α = .66, 7 items from the Self-Esteem Questionnaire (Rosenberg, 1979), "In most things I am as good as many other people"). *Brooding* (8 items, α = .72, rated on a 3-point scale (not, a little, a lot), indicating how much a person brooded about physical appearance, relationships, school performance).

Bullying. To assess involvement in bullying, we used three scales of the Bully/Victim self-report Questionnaire (Olweus, 1991): 1) victim of indirect bullying (4 items, α = .63), to indicate feelings of isolation from the group, 2) victim of direct bullying (5 items, α = .77), and 3) bullying others (5 items, α = .82), to indicate how much a person actively participated in bullying others. Per scale, 4- and 5-point Likert scale item scores were transformed into z-scores and averaged.

Delinquency. The frequency of delinquency and antisocial behavior over the past 12 months was assessed using 21 items representing a wide range of behaviors (cf. Jessor & Jessor, 1977; Windle, 1992). Each item was rated on a 7-point scale (zero, 1-3 times, 4-6 times, 7-12 times, 13-26 times, 27-52 times, 53 and more times). Principal component analysis revealed three factors (cf., Loeber et al., 1993). The factors were labelled covert delinquency, overt delinquency, and conflict with authority. Covert delinquency (12 items, α = .90) concerned such behaviors as running away from home and staying out all night without parental permission, theft, or vandalism. Overt delinquency (3 items, α = .83) included violence and getting into fights. Conflict with authority (5 items, α = .65) included such behaviors as quarrelling with parents, siblings, or teachers.

Results

Factor Analysis of the Support Dimensions

In order to address the question how the provision/provider model was represented in adolescent perceived support, we first applied confirmatory and subsequently replicated exploratory factor analyses. Guided by our theoretical distinction between the provisions and providers of relational support, we tested several alternative models using Confirmatory Factor Analysis. First, we tested a one-dimensional model in which relational support is considered to be a unitary construct with the five dimensions of relational support for four network members loading on one factor. This model did not fit the data (GFI = .54, NFI = .48, NNFI = .42) and was therefore rejected. Second, we tested the provider model in which relational support is assumed to be organized around the individuals in the social network. In this model, the support dimensions were assigned to four latent factors with the five provisions of relational

support of a specific provider loading on one factor. Although this model showed significant improvement over the one-dimensional model, the fit was still not satisfactory (GFI = .61, NFI = .62, NNFI = .57). Third, we tested the provision model in which relational support is assumed to be organized around specific support functions. In this model, the support dimensions were assigned to five latent factors with the information from all of the providers for a specific support function loading on a separate factor. Although this model also showed significant improvement over the one-dimensional model, the fit was still unsatisfactory (GFI = .54, NFI = .63, NNFI = .56).

Finally, we tested a full provision/provider model in which nine latent factors were assumed. In this model, the support dimensions were assigned to five latent factors representing the five support functions and four latent factors representing the four providers. This combined model showed a moderately acceptable fit (GFI = .91, NFI = .94, NNFI = .92). However, because the resulting factor structure of nine latent factors lacks parsimony, additional exploratory factor analyses were undertaken to pursue the possibility of a more parsimonious model.

A principal component analysis with varimax rotation was conducted on the 20 support dimensions (i.e., 4 providers times 5 provisions). Five factors emerged accounting for 75.0% of the variance, with eigenvalues of 8.77, 2.11, 1.63, 1.28, and 1.22, respectively. Replicated principal component analysis on two randomly selected independent halves ($\underline{n}$= 1130) of the total sample revealed similar five factor solutions for the two samples: the Tucker's coefficient of factor congruence among corresponding factors ranged from .99 to 1.00. In addition, in a forced six-factor solution for the two samples the sixth factor consisted of only one item with the other five factors resembling the initial five-factor solution. The five-factor solution thus seemed most appropriate to represent the data. The results of the exploratory factor analysis for the total sample are presented in Table 4.1.

Table 4.1
Varimax Rotated Five-Factor Structure for the 20 Support Dimensions

Factor	1	2	3	4	5
Emotional support father	**.82**	.13	.19	.15	.15
Acceptance father	**.82**	.08	.11	.11	.15
Information father	**.78**	.21	.16	.17	.09
Acceptance mother	**.75**	.15	.11	.19	.19
Emotional Support mother	**.74**	.19	.20	.24	.18
Information mother	**.68**	.28	.19	.24	.10
Emotional Support friend	.22	**.80**	.12	.21	.06
Information friend	.20	**.77**	.10	.20	.01
Acceptance friend	.29	**.73**	.08	.16	.07
Respect for Autonomy friend	-.00	**.66**	.13	.16	**.54**
Convergence of Goals mother	.36	.02	**.81**	.13	.18
Convergence of Goals father	**.42**	.00	**.79**	.05	.17
Convergence of Goals sibling	.09	.18	**.76**	.40	.11
Convergence of Goals friend	.03	**.49**	**.71**	.05	.09
Emotional Support sibling	.26	.21	.18	**.81**	.10
Acceptance sibling	.32	.13	.15	**.78**	.12
Information sibling	.25	.26	.08	**.76**	.04
Respect for Autonomy mother	.38	.06	.17	.12	**.78**
Respect for Autonomy father	**.45**	.05	.17	.04	**.76**
Respect for Autonomy sibling	-.00	.28	.20	**.56**	**.58**
Variance explained (%)	44	10	9	6	6

Note. Loadings > |.40| printed in bold.

The first factor consisted of Emotional Support, Acceptance, and Information from both mothers and fathers. The second factor contained all the support provisions from the best friends except Convergence of Goals. The third factor consisted of Convergence of Goals from all four of the providers. The fourth factor consisted of Emotional Support, Acceptance, and Information from a special sibling. The fifth factor, finally, contained Respect for Autonomy from father, mother, and special sibling. Two types of factors thus emerged. The first type was relationship or provider specific, with largely person-specific loadings (i.e., parents, best friend, or special sibling). The second type of factor was support-provision specific with all or almost all of the providers loading on such a factor (i.e., Convergence of Goals and Respect for Autonomy, respectively).

We next formed five scales based on the factors by averaging the scores for all of the items with primary loadings on a particular factor (see Table 4.1). Items with high secondary loadings were not incorporated into these scales because none of the replications showed these items to have primary loadings on the relevant factor and the reliabilities of the scales did not show any improvement when items with high secondary loadings were added. The five scales were labelled Parental Support (α =.91), Friend Support (α = .83), Convergence of Goals (α = .87), Sibling Support (α = .85), and Respect for Autonomy (α = .79), and corresponded to factors 1 through 5, respectively.

Adolescent Development and Gender Effects

In order to examine the potential influence of adolescent development on perceived relational support, hierarchical multiple regression analyses were performed on the individual support factors with the markers of adolescent development entered in the following order: chronological age, school grade level, pubertal timing, and appreciation of pubertal maturation. The intercorrelations among the four markers were as follows: chronological age with grade .82, with pubertal timing .61, and with appreciation .18; school grade with pubertal timing .63, and with appreciation .15; pubertal timing with appreciation .20, all significant at $p < .05$, n = 1969 to 2127. The proportion of variance in the scores for the five different relational support factors explained by the four markers of development was found to be only 1 to 2% for each of the factors, F between 3.36 and 10.95, $p < .01$. This result shows the markers of adolescent development to only relate in a very limited manner to the adolescent perceived relational support. Separate analyses for the boys and girls yielded similar results.

In order to test for possible gender differences in the support factors, differences between support factors within persons, and more specific developmental differences regarding the support factors, a three-way MANOVA with Gender and Chronological Age (in years) as between-subjects factors and Support Factor as a repeated measure was carried out. There were main effects for Support Factor, F (4, 1943) = 318.35, $p < .001$, and for Gender, F (1, 1946) = 41.83, $p < .001$, and interaction effects for Gender x Support Factor, F (4, 1943) = 13.14 and Age x Support Factor, F (20, 6445) = 4.74, $p < 001$. A three-way interaction was not present. Paired t-tests on all possible pairs of factors within each age showed the scores for Parental Support and Friend Support to be significantly higher than the scores for the other three factors for 12- to 16-year olds (see Figure 4.1). On average, 12-to 15-year-old adolescents also scored higher on Parental Support than on Friend Support, while 16- to 17-year olds reported the same level of support from parents and best friends. The scores for Convergence of Goals and Respect for Autonomy were generally lower than the scores for the other three factors, with 13-, 14-, and 15-year olds scoring significantly lower on Respect for Autonomy than on Convergence of Goals.

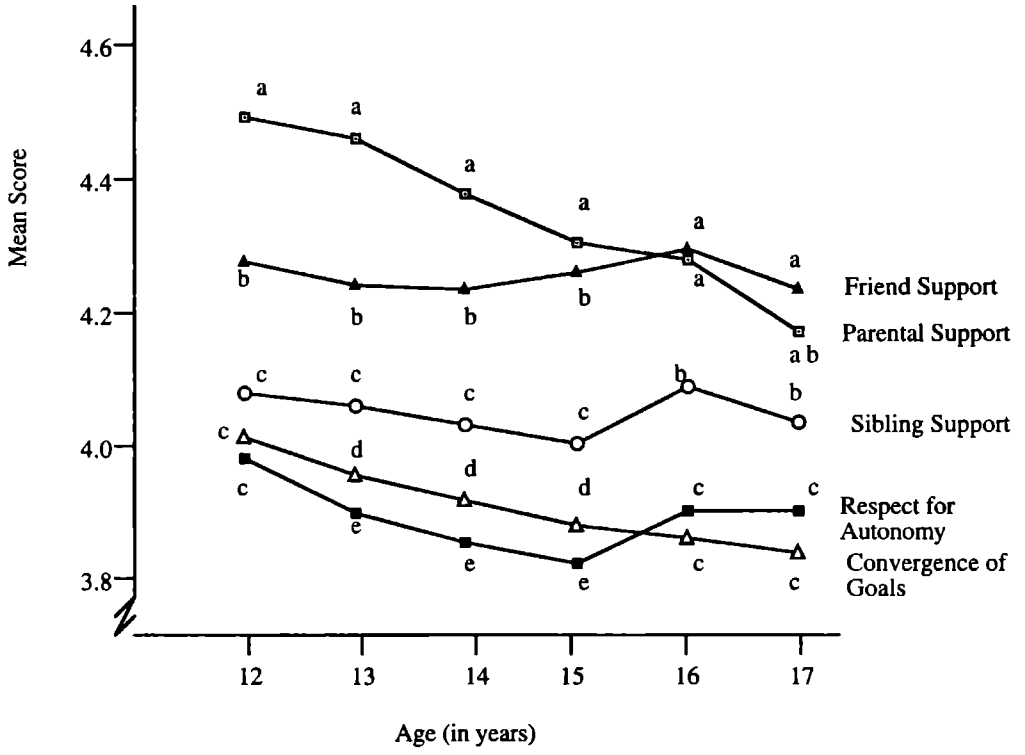


Figure 1: Mean scores on the five support factors across age

Note: Means with different letters for the same age are significantly different at $p < .01$

Additional univariate analyses on each of the five support scales with Gender and Chronological Age as between-subjects variables showed girls to score higher than boys on each scale and revealed significant age differences for Parental Support only. Trend analysis showed a significant linear decrease in perceived Parental Support with increasing age, with 12- to 14-year olds scoring significantly higher than 15- to 17-year olds. The significant Gender x Support Factor interaction reflected variations in the pattern of boys' and girls' scores for the five support factors, and the Age x Support Factor interaction represented varying differences between support factors across age.

Types of Perceived Relational Support

The second aim of this study was to determine whether specific configurations of relational support could be distinguished for adolescents. A cluster analysis was performed on the 20

support dimensions (i.e., five dimensions of perceived relational support for the four network members each). This cluster analysis was accomplished in two steps. First, the same cluster analyses were performed on a number of randomly selected independent halves of the total sample, yielding four clusters of adolescents similar in terms of their scores for perceived support. Second, on the basis of these cluster analyses, initial cluster centers obtained using Ward's method, were specified for each of the 20 dimensions. These initial centers were then used to classify each adolescent in the sample to a cluster, using SPSS-X procedure QUICK CLUSTER. Four types of adolescents who differed in their patterns of perceived support were again extracted. Type I comprised 35% (n = 796; 441 girls, 355 boys) of the total sample, Type II, Type III, and Type IV comprised 27% (n = 622; 265 girls, 357 boys), 22% (n = 488; 154 girls, 334 boys), and 9% (n = 198; 114 girls, 84 boys) of the sample, respectively. Type V consisted of 158 adolescents (70 girls, 88 boys; 7%) who did not report having a best friend and whose support providers thus consisted of father, mother, and special sibling.

The five configurations or types of perceived relational support were next subjected to a series of one-way analyses of variance (ANOVAs) with Type of Support as between-subjects factors and the scores on the different dimensions of relational support as the dependent variables. Figure 4.2 shows the results, with letters indicating differences of means of each support dimension across the five types. The ANOVAs revealed significant differences between the Types for all of the five dimensions, $Fs > 275.25$, $p \leq .001$. Follow-up analyses were conducted using Student Newman-Keuls tests at the .05 level of significance. Type I, Type II, and Type III adolescents can be characterized as differing in overall level of perceived support for all five dimensions. Type I adolescents perceived the highest support on these dimensions followed by Type II adolescents; Type III adolescents scored particularly low on all of the five dimensions of perceived relational support. Within each of these three types, the level of perceived support seemed to be generalized across the three provider and two provision factors. These types were therefore labelled: Type I: High Overall Support; Type II: Average Overall Support; Type III: Low Overall Support. The Type V adolescents reported having no best friend and were therefore labelled the Nonfriend Group. They obviously had no scores for Friend Support, and reported levels of perceived support that were similar to those for the Type II adolescents (Average Overall Support), except on Parental Support, on which the Type V adolescents scored significantly lower. In contrast to the scores for the other four types, the scores for the Type IV adolescents showed marked differentiation between the three provider factors. That is, they scored very low on Parental Support, average on Sibling Support, and relatively high on Friend Support -- even higher than the Type II adolescents. Together with Type III adolescents, they also scored low on Respect for Autonomy. Because the level of perceived support for the Type IV adolescents was not generalized across the five factors, Type IV was labelled Mixed Support.

The ANOVAs revealed the differences between the five types. To further investigate possible differences in the dimensions of perceived support within a particular type of

perceived relational support, MANOVAs and subsequent paired t-tests were carried out for each Type with the Support Scale as repeated measure. In general, the results represented the differences found in the total sample as presented in Figure 4.1.

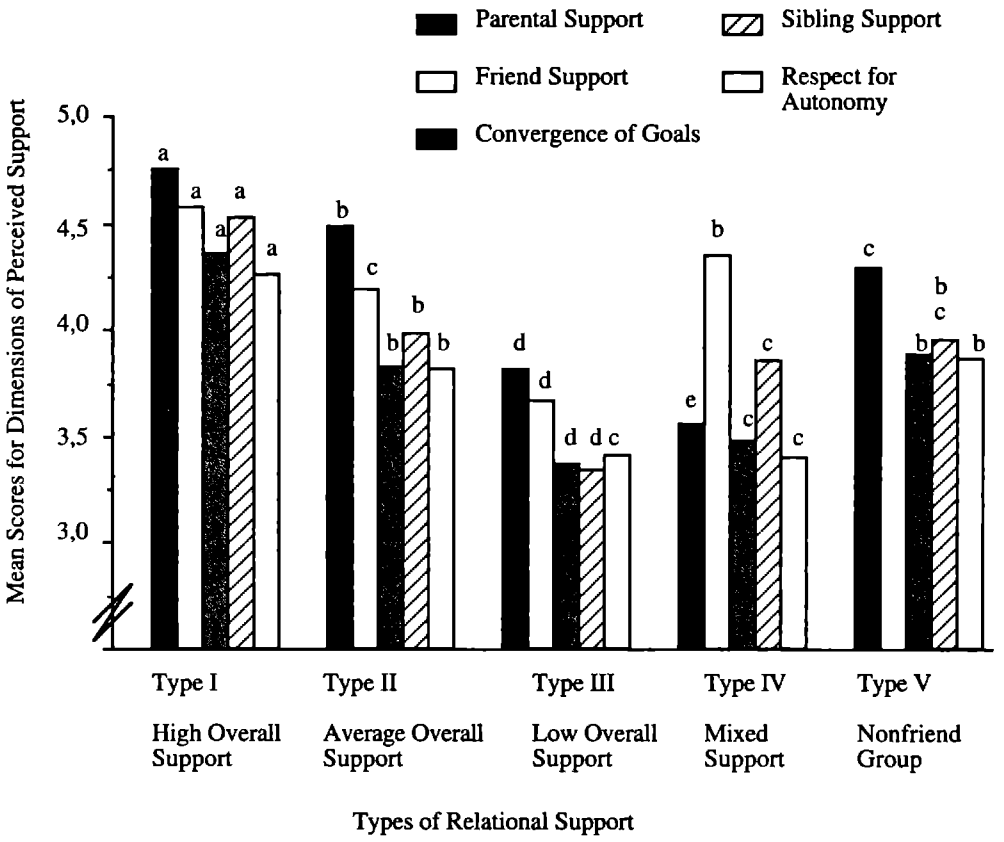


Figure 4.2: Mean scores on the five support dimensions for the five types of Relational Support

Note: Different letters of the means of the same dimension across types indicate significant differences at $p < .05$

With the exception of Type IV (Mixed Support), all adolescents were found to score highest on Parental Support, followed by Friend Support (except Type V) and Sibling Support. In contrast, Type IV adolescents scored highest on Friend Support, followed by Sibling Support. Their scores on Parental Support were significantly lower than the scores on Friend Support and Sibling Support.

Thus far, the analyses were performed on the scale scores derived from the exploratory factor analyses. As a check, we examined how the five configurations or types differed on the 20 (i.e., five dimensions of relational perceived support for four different providers) support dimensions that had served as cluster variables. The results confirmed our earlier findings of differences for the five dimensions of perceived relational support, with one addition. Whereas adolescents of the other types perceived the same level of support from the father and the mother (Type I) or significantly more support from the father than from the mother (Types II, III, and V), Type IV adolescents perceived not only very low support from both parents but also especially low support from their fathers.

Gender differences and developmental changes for the five types were as follows. Chi-square analyses revealed significantly more girls than boys to be classified as Type I and Type IV, and significantly more boys than girls to be classified as Type II and Type III; no significant differences in the number of girls and boys in Type V were observed. Two-way analyses of variance (ANOVAs) with Type of Perceived Support and Gender as factors, and the four markers of adolescent development as dependent variables showed main effects for Type of Support on each of the markers, with F being 6.31, 3.46, 3.02., and 3.40 (all $ps < .01$) for chronological age, school grade, pubertal timing, and appreciation of pubertal maturation, respectively. Additional univariate analyses revealed that Type IV adolescents were chronologically older than adolescents of all of the other types and in higher grades than adolescents of Type II only. Regarding pubertal timing, Type IV adolescents matured significantly earlier than the adolescents of the other types. Differences in appreciation of pubertal maturation were only found for Type III adolescents, who had a significantly lower appreciation than adolescents of Types I and II.

Development, Type of Support and Adjustment

In order to examine the relation of each of the four markers of adolescent development to adjustment and the different types of perceived support, we computed MANCOVAs with Type of Support (5 Types) and Gender as the between-subjects factors and the measures of adjustment as the dependent variables. We estimated the contribution of each of the four markers of adolescent development by adding them as covariates to the MANCOVAs again in the same order: chronological age, school grade level, pubertal timing, and appreciation of pubertal maturation. We tested the contribution of grade to adolescent adjustment with the effects of age taken into consideration; the contribution of pubertal timing with age and grade taken into consideration; and the effects of appreciation of pubertal maturation with age, grade, and pubertal timing taken into consideration. In other words, the developmental effects were partialled out of the relation between adjustment and type of support, which will be evaluated next.

Developmental Markers and Adjustment. For each of the domains of adjustment, significant multivariate effects of the four markers were found. Univariate analyses were performed to identify the basis of significant effects of the developmental markers (see Table 4.2 with multivariate F-values in bold).

Chronological age was related to a number of the dependent variables. Older adolescents scored higher on peer-perceived Aggression-Unattentiveness, Self-confidence, Sociability, and Peer Acceptance but lower on self-reported Conscientiousness. In addition, they used more of all substances and reported higher levels of involvement in the three types of delinquency. Finally, older adolescents had higher self-esteem and less often felt themselves to be the victim of direct bullying than younger adolescents.

After controlling for the effects of age, school grade turned out to have an additional contribution to the prediction of a number of variables that significantly related to age and a number of variables that did not significantly relate to age. In contrast to age, adolescents in higher grades were lower in peer perceived Self-Confidence and Sociability; they smoked fewer cigarettes than the adolescents in the lower grades but consumed more alcohol and had more conflicts with authorities. Furthermore, adolescents in the higher grades were less Extraverted, less Agreeable, and less Emotionally Stable. They also worried less about home, and had lower scores on bullying others than adolescents in the lower grades.

Pubertal timing also significantly predicted various variables, even after the effects of age and grade were taken into account. Early maturing adolescents scored lower on peer perceived Achievement-Withdrawal and Emotionality-Nervousness and higher on peer perceived Self-confidence and Sociability. In addition, they rated themselves higher than later maturing adolescents on Extraversion, Agreeableness, Emotional Stability, and Openness/ Intellect. Compared to late maturers, early maturers were also found to feel less lonely and to report lower levels of being the victim of direct and indirect bullying. Finally, early maturers scored higher on substance use and conflict with authority than late maturers.

The adolescent's appreciation of his or her pubertal maturation was considered the most specific marker of adolescent development and was thus expected to not add much to the prediction of the dependent variables after taking the effects of chronological age, school grade, and pubertal timing into account. The adolescents' appreciation of their pubertal maturation was nevertheless found to predict a significant amount of the variation in not only self-reported but also in peer reported adjustment. Adolescents with a positive appreciation of their maturation scored higher on peer perceived Aggression-Unattentiveness and Self-Confidence but lower on peer perceived Achievement-Withdrawal and Emotionality-Nervousness than adolescents with a more negative appreciation of their

Table 4.2

Sequential Effects (F-values) of Four Developmental Markers on Adolescent Peer Reputation, Personality, and Psychosocial Adjustment

	Developmental Marker			
	Chronological Age	Grade	Pubertal Timing	Appreciation
Peer Reputation	**9.59*** **	**5.98*** **	**5.58*** **	**3.81** **
Aggression-Unattentiveness	29.49***	1.84	.22	3.97*
Achievement-Withdrawal	.08	1.57	14.54***	5.95*
Self-Confidence	5.33*	25.24***	8.66**	6.13*
Sociability	9.87**	13.23***	6.77**	3.07
Emotionality-Nervousness	.50	4.48*	15.04***	9.66**
Peer Acceptance	5.97*	.23	3.78	1.38
Peer Rejection	2.62	.08	1.34	.38
Personality	**4.31** **	**5.90*** **	**4.30** **	**13.45*** **
Extraversion	.54	10.96**	10.54**	37.33***
Agreeableness	1.59	10.66**	7.07**	32.56***
Conscientiousness	4.73*	1.05	1.74	6.18*
Emotional Stability	2.84	12.56***	7.71**	22.19***
Openness/ Intellect	3.12	3.16	12.23***	17.97***
Psychosocial Adjustment				
Substance use	**138.48*** **	**13.77*** **	**12.54*** **	**2.46**
Alcohol	403.47***	20.15***	35.01***	6.40*
Cigarette	116.21***	6.39*	13.85***	3.12
Drugs	59.09***	.65	4.22*	.37
Well-being	**3.00***	**4.22** **	**3.44** **	**7.91*** **
Worrying about home	.03	9.46**	.18	5.95*
Loneliness	.31	.00	4.99*	13.26***
Self-esteem	4.08*	2.32	.57	20.76***
Brooding	.02	.99	3.60	19.89***
Bullying	**26.73*** **	**8.64*** **	**4.74** **	**16.25*** **
Victim direct bullying	55.97***	12.09**	11.64**	42.01***
Victim indirect bullying	.04	.65	8.30**	24.63***
Bullying others	.85	8.54**	.45	3.93*
Delinquency	**5.31** **	**13.93** **	**9.18*** **	**3.25***
Covert delinquency	10.95**	.18	1.62	1.14
Overt Delinquency	7.35*	3.61	.01	3.23
Authority conflict	10.86**	28.11***	16.67***	8.07**

Note: Multivariate F-values printed in bold. F-values that are underlined indicate a negative association between developmental marker and variable. *: $p < .05$, **: $p < .01$; ***: $p < .001$

pubertal maturation. They rated themselves higher on all of the Big Five personality factors and had higher scores on well-being, for example, less worrying about home, less loneliness, and less brooding, and higher self-esteem, and felt less often a victim of direct or indirect bullying, and bullied others less. Adolescents with a positive appreciation also reported less conflict with authority.

Types of Perceived Support and Adjustment. Just how a particular configuration or type of perceived support related to adjustment after the four markers of adolescent development were partialled out was also examined in the preceding MANCOVAs. Table 4.3 shows the relations between the five types of support and the different measures of adjustment with the developmental effects already taken into consideration. The main effects of Gender are in accord with the literature and will therefore not be presented here; Gender by Type of Perceived Support interactions were not observed.

Table 4.3

Means and Standard Deviations for Reputation and Peer Acceptance, Personality, and Psychosocial Adjustment for the five Types of Perceived Support

Support Type	I (n=796)	II (n=622)	III (n=488)	IV (n=198)	V (n=158)	F
Reputation and Peer Acceptance						**3.12*** **
Aggression-Unattentiveness	.59[b] (.18)	.59[b] (.19)	.61[b] (.19)	.64[a] (.19)	.58[b] (.17)	3.49**
Achievement-Withdrawal	.57[b] (.21)	.55[b] (.21)	.56[b] (.21)	.51[c] (.19)	.62[a] (.22)	6.46***
Self-Confidence	.62[a] (.21)	.59[ab] (.21)	.57[b] (.22)	.61[ab] (.23)	.56[b] (.22)	3.21*
Sociability	.62[a] (.23)	.59[b] (.23)	.57[b] (.22)	.63[a] (.24)	.55[b] (.22)	4.30**
Emotionality-Nervousness	.64[b] (.17)	.64[b] (.17)	.67[a] (.18)	.66[ab] (.17)	.68[a] (.19)	2.61*
Peer Acceptance#	.58[a] (.32)	.58[a] (.32)	.55[b] (.33)	.57[a] (.34)	.56[ab] (.32)	3.76**
Peer Rejection#	.51[ab] (.35)	.47[b] (.35)	.53[a] (.35)	.56[a] (.36)	.50[ab] (.35)	2.67*
Big Five personality factors						**16.97*** **
Extraversion	4.97[a] (.96)	4.78[b] (.88)	4.50[c] (.88)	4.82[b] (.95)	4.31[d] (.90)	18.37***
Agreeableness	5.65[a] (.68)	5.36[b] (.62)	4.94[d] (.68)	5.36[b] (.79)	5.22[c] (.67)	64.91***
Conscientiousness	4.76[a] (.83)	4.55[b] (.75)	4.34[c] (.74)	4.30[c] (.77)	4.56[b] (.76)	19.93***
Emotional Stability	4.89[a] (.95)	4.81[a] (.94)	4.59[b] (.88)	4.53[b] (1.05)	4.59[b] (.99)	11.09***
Openess/ Intellect	5.18[a] (.74)	5.01[b] (.67)	4.82[c] (.70)	5.06[b] (.71)	4.91[bc] (.70)	15.62***
Psychosocial Adjustment						
Substance use						**6.22*** **
Alcohol	1.93[c] (2.41)	1.99[c] (2.42)	2.36[b](2.67)	2.93[a] (2.72)	1.68[c] (2.10)	8.59***
Cigarettes	.89[c] (2.09)	.94[c] (2.11)	1.39[b] (2.47)	2.14[a] (2.85)	.49[c] (1.54)	11.96***

(Table 4.3 continues)

(Table 4.3 continued)

Means and Standard Deviations for Reputation and Peer Acceptance, Personality and Psychosocial Adjustment for the five Types of Perceived Support

Support Type	I (n=796)	II (n=622)	III (n=488)	IV (n=198)	V (n= 58)	F
Drugs	1.13^{c} (.42)	1.13^{c} (.40)	1.22^{b} (.56)	1.49^{a} (.73)	1.11^{c} (.39)	11.58***
Well-being						**23.56*** **
Worrying about home	1.25^{d} (.41)	1.35^{c} (.51)	1.46^{b} (.54)	1.68^{a} (.61)	1.24^{cd} (.46)	28.53***
Loneliness	1.05^{c} (.14)	1.08^{b} (.18)	1.16^{a} (.26)	1.13^{a} (.24)	1.17^{a} (.27)	22.96***
Self-esteem	1.88^{a} (.17)	1.84^{b} (.19)	1.76^{c} (.24)	1.75^{c} (.26)	1.87^{ab} (.18)	28.48***
Brooding	1.37^{d} (.31)	1.44^{c} (.35)	1.51^{b} (.38)	1.59^{a} (.35)	1.36^{d} (.31)	21.11***
Bullying #						**12.23*** **
Victim direct bullying	-.15^{c} (.62)	-.02^{b} (.66)	.19^{a} (.79)	.06^{b} (.77)	.04^{b} (.84)	13.72***
Victim indirect bullying	-.18^{c} (.52)	-.05^{b} (.59)	.19^{a} (.77)	.14^{a} (.71)	.16^{a} (.80)	20.07***
Bullying others	-.15^{c} (.73)	-.04^{b} (.65)	.15^{a} (.81)	.14^{a} (.89)	-.19^{bc} (.55)	14.17***
Delinquency						**8.86*** **
Covert delinquency	1.14^{b} (.38)	1.17^{b} (.40)	1.31^{a} (.70)	1.32^{a} (.52)	1.10^{b} (.19)	12.33***
Overt delinquency	1.20^{b} (.64)	1.22^{b} (.60)	1.43^{a} (1.03)	1.44^{a} (.93)	1.13^{b} (.43)	8.52***
Authority Conflict	2.53^{d} (1.06)	2.76^{c} (1.09)	2.99^{b} (1.24)	3.38^{a} (1.36)	2.75^{bc} (1.01)	19.10***

Note. # probability scores. Multivariate effects for Type of Support are in bold. Different superscripts within the same variable indicate significantly different means, tested with Student Newman-Keuls, $p < .05$. Type I: Overall High Support; Type II: Overall Average Support; Type III: Overall Low Support; Type IV: Mixed Support; Type V: No Best Friend

* $p < .05$. ** $p < .01$. *** $p < .001$

Peer-group Reputation and Peer Acceptance. The MANCOVA on peer-group reputation and peer acceptance showed a main effect for Type of Support. Subsequent univariate analyses showed adolescents with mixed support (Type IV) to score highest on peer-perceived Aggression-Unattentiveness, and lowest on peer-perceived Achievement-Withdrawal. In contrast, the nonfriend type (Type V) scored highest on Achievement-Withdrawal. The adolescents with high, average, or low overall support (i.e., Types I, II, and III, respectively) did not differ significantly from each other on these dimensions. The low-support and nonfriend types (Types III and V) scored lowest on Self-Confidence and Peer Acceptance and highest on Emotionality-Nervousness. Adolescents with high overall support and those with mixed support (Types I and IV) scored highest on Sociability. Adolescents with mixed support and those with low overall support (Types IV and Type III) were found to be most rejected.

Big Five personality factors. The MANCOVA with the Big Five personality factors as the dependent variables showed a main effect for Type of Support. Adolescents with high overall support (Type I) scored highest on all five personality factors. Adolescents with average overall support (Type II) scored neither highest nor lowest on any of the personality factors. Adolescents with no best friends (Type V) rated themselves lowest on Extraversion followed by those with low overall support (Type III). Together with the adolescents with low and mixed support (Types III and IV), the nonfriend group (Type V) showed the lowest scores for Emotional Stability. The adolescents with low and mixed support (Types III and IV) also rated themselves lowest on Conscientiousness. In addition, adolescents with low support (Type III) showed the lowest scores on Agreeableness and Openness/Intellect.

Psychosocial Adjustment. The MANCOVAs yielded main effects for Type of Support in all four domains of Psychosocial Adjustment. Subsequent univariate analyses showed the following. With respect to all types of substance use, adolescents with low or mixed support (Types III and IV) scored significantly higher than the other adolescents. Adolescents with mixed support (Type IV) also drank more alcohol, smoked more cigarettes, and used more drugs than adolescents with low overall support (Type III). Adolescents with mixed support (Type IV) worried most about the home situation, scored lowest on self-esteem, and highest on loneliness and brooding; they were followed in this by the adolescents with low overall support (Type III). Again, adolescents with high overall support (Type I) showed the most positive scores on all of these measures, and adolescents with average overall support (Type II) showed average scores. The adolescents with no best friend (Type V) had favorable scores on all of the measures, with the exception of loneliness, on which they scored as high as adolescents with low or mixed support (Types III and IV).

A similar pattern with those adolescents with low or mixed support (Types III and IV) being least well adjusted was also revealed for bullying and delinquent behavior. Adolescents with low support (Type III) perceived themselves to be the victims of direct bullying the most.

Together with the adolescents with mixed support (Type IV), they experienced the highest levels of isolation by their classmates and indirect bullying. In addition, the adolescents with low or mixed support (Types III and IV) reported the highest level of involvement in bullying others. Adolescents with high overall support (Type I) felt least victimized and isolated. Adolescents with no best friends (Type V) scored low on active involvement in bullying and on being a victim of direct bullying. Like adolescents with low or mixed support (Types III and IV), however, the adolescents with no best friends (Type V) also reported high levels of feeling isolated by their classmates.

The adolescents with low or mixed overall support (Types III and IV) showed the highest scores on all three forms of delinquency when compared to the adolescents of the other three types of perceived support. With regard to conflict with authority, adolescents with mixed support (Type IV) scored significantly higher than those with low overall support (Type III). Adolescents of the other three types had similarly low scores on overt and covert delinquency, and adolescents with high overall support (Type I) scored significantly lower on conflict with authority.

Discussion

The variable-centered and person-centered approach produce complementary results in the study of perceived support in adolescence. In the variable-centered approach a replicable structure of five basic dimensions of perceived support is detected, whereas in the person-centered approach five distinguished and replicable configurations of perceived support among adolescents are found.

The Variable-Centered Approach

The study of the 20 support dimensions (five support dimensions times four providers) showed neither a provision nor a provider model to fully account for the dimensions underlying adolescents' perceived support. The provision/provider model in which provisions and providers were intertwined, appears to be most appropriate. Of the five detected factors, three were found to be provider specific (i.e., Parental Support, Friend Support, and Sibling Support), and two were found to be provision specific (i.e., Convergence of Goals and Respect for Autonomy). These five basic dimensions of perceived support are also in line with those revealed in other studies based on provider, provision, or combined models (e.g., Cauce et al, 1990).

Across age, adolescents perceived the highest but decreasing levels of support from their parents, followed by support from their best friends. At age 17 best friends were perceived equally supportive as parents, and not -- in contrast to other studies -- as being more supportive than parents, however, as was found in other studies (e.g., Furman & Buhrmester, 1992). In our study, the shift in importance of best friends relative to parents was found to be entirely due

to a decrease in perceived support from parents, which is in contrast to the widely held view that the significance of family relationships does not decline (see Steinberg, 1993).

The factor Convergence of Goals consisted of the degree of convergence versus divergence in the adolescent's and key provider's orientations towards central goals (e.g., ideas about life, religion, politics) and more peripheral goals (e.g., ways of behaving, dressing, or interacting with peers). This dimension, even more than Respect for Autonomy, was not provider-specific, but was generalized across parents, siblings, and, most noteworthy, best friends. This implies that adolescents have the same pattern of convergence or divergence (i.e., conflict) for both parents and friends. This finding stands in marked contrast to the assumption that adolescents diverge from their parents and converge with friends and thereby become more autonomous from their parents, and not from their friends (Silverberg & Steinberg, 1986). The opinions of adolescents on a number of basic life issues may, rather, converge or diverge with all of the potential providers.

The Person-Centered Approach

In the person-centered approach five types of adolescents emerged that differed in their configurations of dimensions of perceived support. For the vast majority of the adolescents (i.e., 84%, representing the first three types) the level of perceived support was found to generalize across the five dimensions of perceived support. These adolescents differed only in the amount of perceived support, and either perceived high, average, or low overall support on all five dimensions of perceived relational support. Those adolescents perceiving the highest or lowest level of parental support also perceived the highest or lowest level of support from a special sibling and from their best friend, reported the highest or lowest level of Convergence of Goals, and experienced the most or least Respect for Autonomy from family members. Strikingly, the adolescents reporting low support from their parents (Type III) were found to report even lower support from their best friends.

This position of best friends is surprising because best friends are generally assumed to become important sources of support as children grow up. There are a number of explanations why adolescents may perceive low support from their parents and best friends. For example, Grotevant and Cooper (1985) have shown that adolescents who grow up in a warm and affective family atmosphere are likely to develop good social relationships with their peers. Adolescents who come from homes characterized by cold or excessively constraining relationships are less likely to develop good relationships with other people. Another related explanation may be that the adolescents' perceptions reflect their internal working model (cf., Bowlby, 1988; Bretherton, 1985), or individual sense of support (cf., Sarason, Pierce, & Sarason, 1990). According to this view, a sense of support is based on early childhood relationships and especially those with one's parents. These early experiences are thought to have long-term effects on how people view themselves and how they perceive subsequent intimate relationships in terms of social support. This effect is hypothesized to be mediated by

working models of the self and relational partners (Sarason et al., 1990) and to affect adolescents with high, average, and also low support in similar ways.

The fourth type of adolescents (i.e., Type IV) comprised 9% of the sample and showed a nonunitary pattern of perceived support which was not generalized across the five dimensions. More specifically, there was a differentiation in the support perceived from parents versus best friends and siblings. The Type IV adolescents reported the lowest perceived support from their parents and even lower support from their father than from their mother. In contrast, the support they perceived from their best friends was relatively high. In other words, the idea of support from best friends compensating for low parental support appears to be true only for a very small group of adolescents. In our study, this group consisted largely of girls, was older, and showed an earlier pubertal maturation than the other groups of adolescents.

Finally, the adolescents who had no best friends (i.e., Type V), contained 7% of the sample and showed an average level of perceived support on the four other dimensions. This indicates that these adolescents did not rely more heavily on their family members for support in order to compensate for not having a best friend. Neither did they perceive more support from their special siblings, which is in contrast to other studies (e.g., East and Rook, 1992).

Development, Perceived Relational Support, and Adjustment

The four developmental markers varying in generality and in their representation of developmental domains were found to affect adolescent perceived support and adolescent adjustment very differently. With the exception of a decrease in perceived parental support across age and an overrepresentation of mixed-support in older adolescents, generalized perceived support was hardly affected by this variety of developmental processes. Although the present study is cross-sectional, it could be argued on the basis of this finding that an adolescent's perceived relational support is relatively stable across development, and is established prior to adolescence, possibly even in early childhood.

In contrast, different domains of adolescent adjustment were highly and variously affected by developmental processes. A number of distinctive trends in the relations between the developmental markers and adjustment underlined (1) the unique contributions of each of the markers, (2) the converging effects of some markers, and (3) the contradictory effects of others. First, each of the four markers made a distinct and unique contribution to the prediction of adjustment, despite the moderate to high association among the four markers. In accordance with earlier studies, chronological age was predictive for substance use and delinquency (e.g., Loeber et al., 1993; Moffitt, 1993). In fact, it was found to be the only marker related to overt and covert delinquency. Age also contributed to peer-group reputation, with older adolescents perceived as more aggressive and unattentive, more self-confident, and more sociable than younger adolescents.

Partialling out chronological age from grade level disentangled the usual confounding of these two developmental markers and revealed a contradictory effect of school grade: Adolescents in higher grades were perceived by their peers as being less self-confident and less sociable than adolescents in the lower grades. They rated themselves lower on the Big-Five personality factors, on feeling themselves to be the victim of bullying, and as being the perpetrator of bullying. The adolescents in the higher grades worried less about home, expressed more conflicts with authorities, and drank more alcohol but, surprisingly, smoked fewer cigarettes.

Independent of chronological age and school grade, pubertal timing was also found to make a significant and unique contribution to the prediction of adjustment. Independent of their age and school grade, late maturing adolescents felt more lonely, reported lower use of substances, and lower conflict with authority. They also had a more negative self-perception in terms of the Big Five personality factors and felt isolated from their peers. Importantly, their self-perceptions were very much in line with the way in which their peers perceived them: Late maturing adolescents were perceived as being very shy, inhibited, oriented towards academic achievement, very emotional, and very nervous. Furthermore, they were perceived as not being very self-confident and sociable, which is in accord with other studies reporting both late maturing boys and girls to be at a social disadvantage (Silbereisen, Petersen, Albrecht, & Kracke, 1989; Tobin-Richards, Boxer, & Petersen, 1983). These results, which would not be found if age was taken as the only developmental marker, clearly underline the importance of incorporating pubertal timing as an additional marker for adolescent development.

Finally, the adolescent's appreciation of his or her pubertal maturation was found to predict many of the adjustment outcomes, even after chronological age, school grade, and pubertal timing were taken into account. Adolescents with a more positive appreciation of their -- early, on time, or late -- maturation had a more positive self-image, were less involved in bullying, and were perceived by their peers as being less shy, less inhibited, less oriented towards academic achievement and not particularly nervous, emotional, or insecure. Appreciation of pubertal maturation was also the only marker clearly related to psychosocial well-being: adolescents with a more positive appreciation of their maturation worried less about home, brooded less in general, felt less lonely, and had a higher self-esteem. Adolescents with a more positive appreciation drank more alcohol but had less conflicts with authority. In sum, adolescents' appreciation of their pubertal maturation contributes highly and disproportionately to their adjustment -- independent of whether the maturation is on-time or off-time, and independent of the other markers of development.

Second, the effects of chronological age, pubertal timing and appreciation of pubertal maturation were unique but nevertheless appeared to converge. Chronologically older adolescents, early maturing adolescents (who are biologically advanced regardless of their younger age), and adolescents with a more positive appreciation of their maturation (who are psychologically mature regardless of age and pubertal timing), showed the same positive

adjustment. The higher incidence of so-called "problem behaviors" such as alcohol use may actually be quite normative for their developmental status, moreover, because alcohol consumption is allowed and generally accepted in The Netherlands at a much earlier age than in many other countries.

Third, regarding the contradictory effects of grade, recall that the adolescents who were older in age, pubertal timing, and appreciation were perceived by their peers as being more self-confident and sociable, while the adolescents in higher grades were perceived as less self-confident and sociable than those in lower grades. A similar pattern was observed for the Big Five factors, with adolescents in the higher grades rating themselves lower on some of these factors, while biologically and psychologically more mature adolescents rated themselves higher on the same factors. An explanation for these seemingly contradictory findings may lie in the increased peer pressure that adolescents in higher grades experience independent of age. The perceptions of peer pressure increase from early to middle adolescence (Steinberg, 1993), leading to a heightened conformity towards the peer group. In other words, perceived peer pressure is higher in the higher as opposed to the lower grades and the adolescents in the higher grades may be more oriented towards their peer group than adolescents in the lower grades. The self-perceptions of adolescents in the higher grades will be heavily influenced by social comparison and conformity, and thereby lead to lower scores on the self-rated Big Five factors. Similarly, higher perceived peer pressure, more social comparison, and higher conformity may also influence the adolescents' peer-group behavior and thereby produce less self-determined behavior in the higher grades, lower self-confidence, and less sociability.

Types of Perceived Relational Support and Adjustment

After the developmental aspects of adolescent adjustment and perceived support were partialled out, we examined the five types of perceived support with respect to adolescent adjustment. Adolescents perceiving high overall support (i.e., Type I) clearly showed the highest adjustment. They had the most positive self-image, scored highest on self-esteem, brooded the least, and felt the least lonely. Furthermore, they scored low on delinquent behaviors, substance use, and involvement in bullying. They described themselves in a very positive way and were also perceived by their classmates as being most self-confident and sociable.

Adolescents reporting average overall support (i.e., Type II) showed average adjustment. They never rated themselves highest or lowest on any of the measures of adjustment. They are likely to be normally functioning and normally adjusted adolescents without a particularly positive or negative self-image, and they are not perceived by their classmates in a distinct manner.

In contrast to all other adolescents, adolescents perceiving low support on all dimensions (i.e., Type III), were found to score low on all adjustment measures. Their self-image was the least positive, they showed a low self-esteem and brooded a lot. In addition, they reported feeling lonely and isolated, and using more substances than those adolescents who perceive high or average support. Finally, the adolescents perceiving low overall support reported relatively high involvement in all three types of delinquent behavior and active bullying. On the basis of these self-descriptions these adolescents could be characterized as being relatively introverted, isolated and withdrawn, and as being unfriendly, aggressive, and not conscientious. When these self-descriptions are based on actual behavior, it will be very likely that their classmates will perceive them in much the same way as they perceive themselves, and these adolescents will therefore score high on peer-perceived Aggression-Unattentiveness and low on peer-perceived Achievement-Withdrawal. However, this did not turn out to be the case. On both of these dimensions, the adolescents with low perceived support are not evaluated differently than the adolescents with high or average perceived support. In other words, the self-perceptions of Type III adolescents, at least with regard to their peer-group behavior do not seem to correspond with their actual or peer-reported behavior.

Adolescents who report extremely low support from their parents and their fathers in particular, but relatively high support from their best friends (i.e., Type IV) showed a very distinct pattern of adjustment. They reported low well-being: they felt lonely, had low self-esteem, and brooded a lot. They were also actively engaged in all three types of delinquent behavior, perceived themselves as perpetrators of bullying and used even more substances than the adolescents with low overall support. In contrast to the adolescents with low support, however, they did not feel isolated by their classmates and had a much more positive self-image. On the basis of these self-reports, these adolescents can be characterized as being extraverted, assertive, aggressive (bullying), and not oriented towards academic performance. This self-image corresponds to the image that their classmates have of them: They are perceived by their classmates as being most quarrelsome, irritable, lazy, absent-minded, and as least hard-working, persistent, shy, and socially inhibited. These self-reported and peer-reported characteristics closely resemble those found for adolescents who demonstrate externalized problem behaviors (e.g., John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994).

The adolescents who reported having no best friends (i.e., Type V) showed a mixed pattern of adjustment. As already mentioned, they did not rely more heavily on their parents or siblings for support in order to compensate for not having a friend. But not having a best friend does appear to have an impact on the well-being of these adolescents. They show high self-esteem, and brood the least, but they nevertheless report feeling very lonely and isolated. Regarding their self-image, they perceive themselves as being very introverted, not very agreeable, and very conscientious. This self-image corresponds exactly to the manner in which they are perceived by their classmates who see them as most hard-working and persistent but also most shy and socially inhibited. In sum, these adolescents can be described as highly oriented

towards academic achievement and as lacking the social skills to interact satisfactorily with their peers. Although their academic functioning does not appear to suffer from their lack of social skills, these adolescents' feelings of loneliness and isolation may be reasons for concern.

Chapter 5

The Association of Friends and Friendships with Adolescents' Perceived Relational Support

Studies on relational support in adolescence have usually distinguished between support perceived on different dimensions or provisions (the provision model) and support perceived from different providers (the provider model). In the provision model the type or content of the supportive interactions is considered most salient with respect to the effects of relational support (see Cutrona & Russell, 1990). According to the provider model (cf. Cauce, Reid, Landesman, & Gonzales, 1990) the specific relationships are the most important sources for perceived relational support.

Recent studies have combined both models in a provision/provider model (cf. Cauce et al., 1990; Scholte, Van Lieshout, & Van Aken, submitted), thus incorporating the various provisions and the different providers of relational support. In their study, Scholte et al. (submitted) distinguished five relational support provisions (i.e., Warmth, Respect for Autonomy, Quality of Information, Convergence of Goals, and Acceptance), and four providers, that is, mother, father, special sibling, and best friend. Principal component analyses revealed five factors: three provider specific factors, and two provision specific factors. Adolescents seemed to distinguish between support -- particularly emotional support -- from specific providers, that is, between parents, special siblings, and best friends, and support on more normative and instrumental provisions such as Respect for Autonomy and Convergence of Goals, irrespective of those providers.

In addition, their study stressed the importance of distinguishing between a variable-centered and a person-centered approach to investigate adolescent perceived relational support. In a variable-centered approach, all subjects are considered as one sample. For that sample the associations between variables are studied. In a person-centered approach, it is examined whether subgroups exist within the total sample that differ in their configurations of specific variables, for example, in their configurations of perceived support. Using a person-centered approach, Scholte et al. (submitted) found five subgroups, or types, of adolescents who differed in their configuration or pattern of perceived relational support. More specifically, the five types could be distinguished in two main groups. One main group (Types I, II, and III) was distinguished according to their general level (high, average, or low) of perceived support on all of the five provision/provider factors. For these three groups, the level of perceived support was generalized across all factors. The second main group was marked either by mixed levels of perceived support, that is, adolescents scored very low on the parental support dimension and relatively high on the best friend support dimension (Type IV), or by the absence of a best friend and average perceived support from the remaining providers (Type V).

Examination of these five types showed that they significantly differed on a number of dimensions of adjustment. The types could be characterized as follows. The adolescents that perceived a high parental and best friend support (Type I, High Overall Support, 35 %) clearly showed the highest adjustment. They had a positive self-image in terms of the Big Five personality factors, had a high self-esteem, felt the least lonely, and reported the lowest levels of delinquency and addictive behaviors (drinking, smoking, using drugs, and gambling). In addition, they were perceived by their classmates as being most self-confident and sociable. The adolescents who perceived average support from their parents and their best friends (Type II, Average Overall Support, 27 %) showed more or less an average adjustment. They never scored highest or lowest on any of the adjustment measures, and were perceived by their classmates as average. The adolescents who perceived a low support from their parents and from their best friends (Type III, Low Overall Support, 22 %) clearly showed the lowest adjustment. They had the least positive self-image, that is, rated themselves low on all of the Big Five personality factors, felt very lonely, had a low self-esteem, and reported more delinquency and addictive behaviors. However, they were not perceived by their classmates in a very specific way. The adolescents who perceived a very low parental support, but a high friend support (Type IV, Mixed Support, 9%), showed a mixed pattern of adjustment. They had a positive self-image with high scores on Extraversion and Agreeableness, but low scores on Conscientiousness; they felt lonely, had a low self-esteem, and reported the highest levels of delinquency and addictive behaviors. Their classmates perceived them as most aggressive and inattentive, least oriented towards academic achievement and least socially withdrawn, but at the same time as very sociable. The fifth type (Type V, Nonfriend group, 7 %), finally, consisted of those adolescents who had no best friend. These adolescents perceived themselves as very conscientious and hard working, but not very agreeable or extraverted. They felt lonely and isolated. These adolescents were perceived by the classmates in much the same way as they perceived themselves. According to the classmates the Type V adolescents were most persistent and hard working, but at the same time most socially withdrawn and inhibited, and the least sociable.

Generally, three elements can be distinguished that are associated with individual differences in adolescents' perceived relational support. First, differences can be related to individual characteristics and psychological processes within an target adolescent, that is, his or her psychological processes or individual behaviors associated with perceptions of the actually received support. Second, differences can be related to the characteristics of the provider of support, for example, psychological processes or behaviors of the father, mother, sibling, or best friend. And third, the differences in perceived relational support can be related to the qualities of the relationship between the adolescent and the provider. These three elements (target, partner, and a relationship), represent different levels of social complexity in a relationship (cf. Hinde, 1997).

Recently, several authors have proposed different conceptual frameworks for describing the social context. For example, in the Social Relations Model (Kenny & Kashy, 1994; Kenny & LaVoie, 1984) three effects are distinguished that exert influence on an individual within a relationship. These effects are the effect of the individual him- or herself, the effect of the partner in an individual's relationship, and the effect of the relationship. Haselager (1997) proposed a three level model for interactions in school classes: the individual, relationship, and group levels. Rubin, Bukowski, and Parker (1996) distinguished three levels in the social domain for the description of an individual's experiences with peers. These levels are interactions, relationships, and groups. The levels reflect social participation at different interwoven orders of complexity and should all be considered in examining peer experiences. Haselager (1997) and Rubin et al. (1996) were influenced by Hinde's (1979, 1997) model of different levels of social complexity. Hinde distinguished as separate levels of social complexity for a person his or her psychological processes, individual behavior, interactions, relationships, groups, and society. According to Hinde, a relationship as a dyadic unit or social nexus is influenced by and influences its component interactions, which in turn are affected by, and affect an individual's psychological processes and behavior. In turn, relationships are embedded in groups and the society at large.

Most studies examining the adolescents' perceived support have focused on the association of the individual characteristics of the target with perceived support, neglecting the role of the provider of support as well as characteristics of the relationship between target and provider. In our earlier study (Scholte et al., submitted), for example, we described extensively the targets' characteristics. But, in addition to these characteristics, characteristics of fathers, mothers, siblings, and best friends, as well as the father-adolescent, the mother-adolescent, the sibling-adolescent, and the friend-adolescent relationship may also have affected the quality of perceived support. In studying adolescents' perceived support other elements than just the targets' individual characteristics, for example, characteristics of relationships, and thus, other levels of social complexity, should be taken into account. Because of the complexity of an individual's interwoven relationships, we focused on a particular kind of relationship that is of special importance in adolescence, namely adolescents' friendships.

The general purpose of the present investigation was to apply Hinde's model of social complexity to the study of perceived support in adolescence by examining the associations of friends and friendships with differences in the configurations of adolescents' perceived relational support. In addition, we applied the model to the selection of variables that were used to qualify the friends and the friendships as elements that are associated with adolescents' perceived support. Following Hinde's (1997) model, behaviors should be specified according to the level of social complexity to which they refer. Seemingly the same behavior can have different meanings at different levels. For example, being friendly or outgoing at the level of the psychological processes refers to the individuals' personality. The same behavior, even measured with the same items, has a totally different meaning at the group level. At this level

being friendly or outgoing is evaluated by the group members in terms of contributions to group goals, and refers, therefore, to peer group reputation (cf. Scholte et al., 1997).

The first specific aim of our study was to examine the associations of friends' characteristics on various domains (i.e., personality, adjustment, peer group reputation, and perceived support) with differences in adolescents' perceived support. These four domains were related to different levels of social complexity (cf. Hinde, 1997). More precisely, the adolescents' personality qualified important psychological processes at the individual level, the adjustment dimensions qualified the individuals' behaviors, the peer group reputations qualified position or role of individual adolescents in their classgroup (group roles), and the perceived support qualified the individual's perceptions of their relationships. Some concrete behaviors seem to qualify the interface between two levels of social complexity rather than to one level only. For example, sociability assessed by peers can be regarded as a group characteristic, but it is not independent of the individual, and can, therefore, be considered as qualifying an individual's role in his or her school class. Similarly, an individual's perceived support is related to both the psychological processes at the individual level (i.e., perceptions) and to the relationship, and can be considered as referring to a person's view of his or her relationships.

Several studies have revealed that adolescents tend to have friends that are similar to them on a number of domains. For example, Cairns, Cairns, Neckerman, Gest, and Gariepy (1988) found that friends were similar on aggression, and tended to form social groups ('cliques') with other aggressive children. Kupersmidt, DeRossier, and Patterson (1995) reported that when similarity on aggression increased, children were more likely to be friends. Other studies found similarities between friends on delinquent behaviors (Giordano, Cernkovich, & Pugh, 1986), self-reported sociability (Gest, Graham-Berman, & Hartup, 1991), peer reported prosocial, antisocial, and withdrawn behavior (Haselager, Hartup, Van Lieshout, & Riksen-Walraven, in press), and academic achievement (Kupersmidt et al, 1995). These studies show that persons with specific behavior characteristics have friends with similar characteristics. In the present study, it was expected that with respect to the perceived relational support, the targets and friends would more often share the same configuration of perceived support than the targets and nonfriends. On the basis of the aforementioned findings it was also expected that friends would show similar patterns of adjustment as targets, and, thus, that the differences between the four types of adolescents would be reflected in the differences between the friends, as opposed to nonfriends.

As mentioned, we distinguished three elements (i.e., target, provider, relationship) that are associated with differences in perceived support and that refer to different levels of social complexity. Whereas the first specific aim of this study focused on the individual level (i.e., the friends' characteristics), the second specific aim focused on the relationship level. That is, we examined the association of the quality of the friendship as a relationship with differences in adolescents' perceived support. The quality of friendships is related to the development of

social competence and adjustment (Hartup, 1992), and may also be related to individual differences in perceived support.

The quality of friendships can be assessed in various ways. Many of the existing measurement instruments for the assessment of friendship qualities are based on self-reports concerning that relationship (e.g., Berndt, 1996; Bukowski, Boivin, & Hoza, 1994; Parker & Asher, 1993; Windle, 1994). Dishion, Andrews, and Crosby (1995) used a more objective measure to assess adolescents' friendship qualities by observing their dyadic interactions in a problem-solving task.

These measurement instruments, however, all qualify an individual's view of a relationship (i.e., the individual's perceptions of the friendships) or are based on information at the interactional level (Dishion et al., 1995). None of these measures are measures of friendship at the level of the relationship itself (cf. Hinde, 1997). We sought to describe the quality of the relationship between friends at the relationship level, by means of similarities between adolescents and their friends (cf. Parker & Asher 1993). Similarity measures between targets and friends were computed (1) for each of the different dimensions of four domains of adolescent psychosocial functioning (i.e., perceived relational support, personality, peer group functioning, and adjustment), and (2) for the profiles based on the scores of all dimensions of each of these four domains. The reason for using profiles was our interest in the similarity of adolescents' functioning on these domains, in addition to their similarity on separate dimensions. The similarities were based on difference scores and correlation coefficients. By so doing, we used both shared variance between adolescents and their friends, as well as an indication of the extent to which they obtained similar score levels on the different measures.

In the present investigation, only one girl and one boy (plus one same-sex friend and one same-sex nonfriend) were studied from each class, thus controlling independence of the friendship dyads and variations of network similarities (cf. Cairns & Cairns, 1994). Because the same target adolescent was involved in a friend dyad and a nonfriend dyad, we were able to examine the similarity on a within-subjects basis, by comparing the target-friend dyads with the target-nonfriend dyads (cf. Haselager et al., in press).

Several studies have found sex differences in friendships. For example, Buhrmester and Furman (1987) reported that girls' interactions with same-sex friends were perceived as more intimate than boys'. Berndt (1988) and Furman and Buhrmester (1992) showed that girls perceived their same-sex friendships as more supportive than boys did. To examine whether sex differences were present in our study, boys' and girls' relationships were compared separately.

Method

Participants

Target adolescents were selected from a sample of 2104 adolescents in the Arnhem-Nijmegen area of the Netherlands, who, in turn, were selected in a previous study (see Scholte et al., submitted) from a total sample of 3361 adolescents on the basis of their network constellation. That is, all had a father and a mother, at least one sibling, and a best friend. These provisions were necessary for a typological study of the relational network reported in that paper. The 2104 adolescents represented the first four types of perceived support (see before); Type V adolescents were omitted from the present study because they did not have a best friend. Five and a half percent of the adolescents considered themselves to be a minority (1.1% came from Surinam, the Netherlands Antilles, or the Molucca Islands; 2.2% came from Mediterranean countries; 2.2% came from other countries).

Target adolescents were selected from the 2104 adolescents as follows. One girl and one boy were chosen from each of the 149 secondary education school classes with the restrictions that (1) nearly equal numbers of targets for each of the four different types were selected, and (2) each adolescent had at least one mutual same-sex friend and one same-sex nonfriend, identified according to the procedures described below. Nineteen classes were dropped from the study because no mutual friends were present in them or because no nonfriends were present; fifteen classes were dropped because their target adolescents were of Type I or Type II, and inclusion of these adolescents would have led to overrepresentation of these types. This resulted in a target sample of 98 girls and 93 boys. In total, the subjects included 573 adolescents (191 targets, 191 friends, and 191 nonfriends) scattered across 115 school classes. The mean age of these subjects was 14 years, 2 months (SD = 1 year, 2 months). From the targets, 57 were of Type I (High Overall Support), 51 of Type II (Average Overall Support), 52 of Type III (Low Overall Support), and 31 of Type IV (Mixed Support). Given the distribution of the types in our larger sample, this selection of targets for the present study resulted in a subsample with relatively fewer Type I and Type II, and relatively more Type III and Type IV targets.

Measures

Friends and nonfriends. Once the target girl and boy in each class were identified, one same-sex friend and one same-sex nonfriend were selected from those available according to the following criteria. In the perceived relational support questionnaire (see below), adolescents were asked if they had a best friend, and, if so, if this friend was a classmate and what the code number of this friend was. Adolescents were considered to be mutual friends if the friends, in turn, also named the targets to be their best friends. In addition, friends who were mutual according to this criteria, but who did not also nominate one another on the peer nomination item "who are your best friends in class" were excluded from being selected as

friends. Although adolescents were allowed to name cross-sex friends, all friends were same-sex. Randomly chosen classmates of the targets were included in the study as nonfriends if they did not nominate, and were not nominated by neither target nor friend on either of the two questions.

Perceived relational support. A 27-item self-report questionnaire was used to measure adolescents' relational support perceived from mothers, fathers, special siblings, and best friends. The subjects were asked to indicate on a 5-point scale ranging from very true (1) to very untrue (5) with sometimes true, sometimes untrue (3) in between how much each of the 27 items held for the following persons: mother, father, special sibling, and best friend. "Your best friend" was described as "a person who, in turn, would nominate you as one of his or her best friends". Romantic partners were not considered best friends. The items were empirically found to represent five perceived relational support factors (Scholte et al., submitted). These dimensions were Parental Support ("my mother/father shows me that she/he loves me", α = .91), Friend Support ("my friend shows me that she/he loves me", α = .83), Convergence of Goals ("this person and I have the same opinions about the use of drugs, alcohol, or gambling", α = .87), Sibling Support ("my sister/brother shows me that she/he loves me", α = .85), and Respect for Autonomy ("this person lets me decide as often as possible", α = .79). See Appendix for an overview of the items.

Big Five personality factors. A self-report questionnaire consisting of 25 bipolar items was used to assess the Big Five personality factors. Subjects were asked to rate on a 7-point scale, ranging from (1) Pole A very true to (7) Pole B very true , with (4) Pole A and Pole B a little bit true in between, how each item held for them. Exploratory and confirmatory factor analyses indeed revealed the Big Five personality factors (Scholte et al., 1997). The Cronbach's alpha reliabilities were .78, .75, .60, .75, and .57 for *Extraversion, Agreeableness, Conscientiousness, Emotional Stability,* and *Openness/Intellect,* respectively.

Peer-group reputation. Peer-group reputation was based on 20 "Guess who" peer nomination items (Thompson, 1960). The 20 items concerned attributes of an individual's peer-group functioning. Per item, the students had to nominate three to five classmates (see Scholte et al., 1997, for a description of the items). For each subject all of the nominations received from all nominating classmates on that item were summed and transformed per class into probability scores (p-scores) to correct for unequal numbers of nominating students per class. In our earlier study (Scholte et al., 1997), factor analyses on the 20 items revealed five replicable peer-group reputation factors: *Aggression-Inattentiveness* (e.g., being perceived as quarrelsome, lazy, absent-minded, irritable), *Achievement-Withdrawal* (e.g., being perceived as persistent, hard working, shy, reserved, withdrawn), *Self-Confidence* (e.g., being perceived as sensible, secure, steady, sincere), *Sociability* (e.g., being perceived as

enthusiastic, considerate, intelligent), and *Emotionality-Nervousness* (e.g., being perceived as emotional, anxious, nervous, uncreative). The Cronbach's alpha reliabilities for the scales based on these factors were .75, .72, .70, .66, and .55, respectively.

Adjustment. Four different dimensions of adolescent psychosocial functioning were assessed. Each of these four dimensions consisted of a number of subscales, that were, because of differences in scaling, standardized to allow the construction of profile scores (see Results). All measures were taken from a nationwide study on Dutch adolescent behavior and well-being (Garnefski & Diekstra, 1993).

Psychological Well-being consisted of five subscales: Self-esteem (e.g., "In most things I am as good as other people", α = .66), loneliness (e.g., "I often feel lonely", α = .46), brooding (e.g., "How often do you brood about your school performances", α = .72), worry about home (e.g., "How often do you feel sad about your parents", α = .56), and like being home (e.g., "How much do you like to be at home", α = .44). Summing the scores on these five subscales yields a Psychological Well-being score, α = .68.

Addictive Behaviors were assessed using four items related to substance use and gambling. The items concerned alcohol use ("How many glasses of alcohol did you drink over the past month"), cigarette use ("How many cigarettes did you smoke per day over the past month"), drug use ("How often did you use soft drugs like marihuana over the past 12 months"), and gambling ("How often did you play cards for money over the past month"). These four items were aggregated into one measure for addictive behaviors, α = .66

Delinquency consisted of the subscales overt and covert delinquency, and conflict with authority (cf. Loeber, 1993). Covert delinquency (α = .90) concerned such behaviors as running away from home, or staying away without parental permission. Overt delinquency (α = .83) concerned violence and getting into fights; conflict with authority (α = .65) concerned items like quarrelling with parents or teachers. Summing the scores of these three subscales yields a Delinquency total score, α = .66.

Somatic complaints were assessed by 8 items indicating how often a person had suffered from various somatic complaints over the past month (e.g., "How often did you suffer from a headache"). The Cronbach's alpha reliability was .76.

Procedure

Trained research assistants administered all of the measures in each of the classrooms during regular class hours. Class group testing sessions, during approximately one and a half hours, were used to obtain peer group reputation and friendship nominations, and self ratings related to perceived relational support, personality, and psychosocial adjustment. Participants were presented a list with the names of all the students in their class, each name followed by a code number, to use as a reference in making the peer nominations. They were instructed to nominate three to five classmates on each of the peer nomination items. To ensure nomination

of those peers best fitting each of the items, cross-sex nominations as well as nominations of classmates not present during the assessment were allowed. Self-nominations were not allowed. Students participated on a voluntary basis; one student refused to participate. Information about the procedures and the instructions were read aloud. If the teachers remained in the classroom, they were requested not to interfere with the procedure.

Results

Preliminary analyses

To examine whether the three participant categories (targets, friends, and nonfriends) were not different from one another with respect to perceived relational support, personality, peer group reputation, and adjustment, two-way ANOVAs with gender and participant category (three levels: target, friend, nonfriend) as between-subject factors were performed. Gender: Boys reported significantly ($p < .01$) higher scores on Emotional Stability, Psychological Well-being, and Delinquency, and also obtained higher scores on Aggression-Unattentiveness than girls. Their scores on Agreeableness, Friend Support, Sociability, and Somatic Complaints were significantly lower. These gender differences are similar to those found in many other studies (cf. Huston, 1983).

Targets, friends, and nonfriends: The analyses showed that the targets, friends, and nonfriends differed on a small number of dependent variables. Targets and friends scored significantly ($p < .05$) higher on Extraversion, Self-confidence, and Sociability than nonfriends. More sociable, self-reliant adolescents may be somewhat overrepresented among the targets and friends compared to the nonfriends. That is, some of the nonfriends may not have had friends at all and friendless individuals are known to be less sociable (cf. Hartup & Stevens, 1997). Friends and nonfriends scored significantly higher than targets on the relational support factors Parental Support and Convergence of Goals. Targets may experience lower support compared to friends and nonfriends because in selecting target adolescents, targets of Types III and IV are overrepresented and targets of Types I and II are underrepresented. The latter two types have high to average levels of perceived support, the former two types have low or mixed support. No significant interactions between gender and participant categories were present.

Types of perceived support

In order to examine whether friends' perceived support was associated with targets' perceived support we first tested whether targets and friends compared to nonfriends shared the same type of perceived relational support. We expected that targets and friends would share the same types more often, whereas the typology of the nonfriends would correspond to the distribution of the total sample in the earlier study (Scholte et al, submitted). The results

showed, first, a significantly different distribution between targets and the total sample (χ^2 = 14.07, df = 3, p < .01), reflecting the underrepresentation of Types I and II and the overrepresentation of Types III and IV as a consequence of the selection procedure of the targets. Second, the distribution of the types of perceived support of the friends was significantly different from the total sample, χ^2 = 24.67, df = 3, p < .001. There were relatively more Type I and Type II friends, and significantly less Type III and Type IV friends. A selection of friends from the total sample contains relatively more adolescents with high or average perceived support (Types I and II), and relatively fewer adolescents with low or mixed support (Types III and IV). The distribution of the types of nonfriends reflected the distribution of the total sample χ^2 = 3.82, df = 3, n.s. Third, despite the underrepresentation of Type I and Type II targets and the overrepresentation of Type I and II friends, the targets' types of support were significantly related with the friends' types, χ^2 = 19.13, df = 9, p < .05, (see corresponding types of support in bold on the diagonal in Table 5.1), and were unrelated with the nonfriends' types, χ^2 = 9.53, df = 9, n.s.

Table 5.1

Observed and Expected Frequencies of Type of Targets and Type of Friends

		Type of Friends				
		Type I	Type II	Type III	Type IV	Total
Type of Targets						
Type I	observed	**23**	11	1	2	37
	expected	**17.9**	14.7	2.9	1.5	
Type II	observed	13	**13**	0	0	26
	expected	12.6	**10.3**	2.1	1.0	
Type III	observed	13	18	**6**	0	37
	expected	17.9	14.7	**2.9**	1.5	
Type IV	observed	12	8	3	**3**	26
	expected	12.6	10.3	2.1	**1.0**	
Total		61	50	10	5	126

Note. Numbers in bold on the diagonal indicate observed and expected frequencies for corresponding Types of perceived relational support between targets and their friends.

Friends' characteristics on four domains of functioning

Next, further individual characteristics of friends, as compared to nonfriends, as an element associated with the targets' perceived relational support were examined. These characteristics concerned the separate dimensions of perceived relational support, personality, peer group reputation, and adjustment. Three-way ANOVAs on these dimensions were used to examine differences associated with Type of Target (Type I, II, III, and IV), Friend status (Friend versus Nonfriend) and Gender. Given the correspondence between targets' and friends' relational support types that was found before, friends were expected to differ significantly from each other according to the Type of Target on the different dimensions. More specifically, like Type I targets, friends of Type I targets were expected to show the most positive scores on all of the dependent variables, while friends of Type II and Type III targets were expected to score average and low, respectively. Friends of Type IV targets were expected to reveal a mixed pattern of functioning. Nonfriends, on the other hand, being unrelated to the targets, were not expected to significantly and systematically differ according to the Type of Target. Thus, the focus of our interest was on interaction effects between Type of Target and Friend Status (Friend versus Nonfriend), eventually including higher order interaction effects involving Gender; main effects of Type of Target, Friend Status, and Gender will not be presented here.

For the personality, peer group reputation, and adjustment domains, no significant interaction effects were present. For perceived support, an interaction effect between Type of Target and Friend Status was present only in Parental Support, $\underline{F}$ (3, 280) = 2.68, $\underline{p} < .05$. Because the adolescent perceived relational support was of special interest in this study, the results concerning this domain are presented in Table 5.2. In accordance with our expectations like Type I targets, the friends of Type I targets perceived the highest Parental Support, whereas the friends of Type IV targets perceived the lowest Parental Support. Unexpectedly, the nonfriends of Type III targets differed from all of the other nonfriends in that they perceived significantly lower Parental Support, a finding that, given the random selection of nonfriends, is not clearly understood. Significant higher order effects involving Gender were not found.

Table 5.2
Perceived Relational Support for Friends and Nonfriends related to Type of Target

		Type of Target			
		I (n = 57)	II (n = 51)	III (n = 52)	IV (n = 31)
Parental Support	Friend	4.58 (.35)[a]	4.48 (.39)[ab]	4.43 (.49)[ab]	4.28 (.62)[b]
	Nonfriend	4.42 (.51)[a]	4.46 (.49)[a]	4.16 (.71)[b]	4.49 (.46)[ab]
Friend Support	Friend	4.35 (.39)	4.33 (.37)	4.20 (.47)	4.38 (.40)
	Nonfriend	4.23 (.50)	4.21 (.53)	4.21 (.52)	4.29 (.37)
Convergence of Goals	Friend	4.14 (.58)	3.89 (.63)	3.81 (.53)	3.78 (.49)
	Nonfriend	3.95 (.71)	3.96 (.66)	3.74 (.62)	4.00 (.51)
Sibling Support	Friend	4.35 (.49)	4.20 (.43)	3.76 (.77)	4.12 (.64)
	Nonfriend	4.00 (.70)	4.12 (.60)	3.95 (.71)	4.11 (.56)
Respect for Autonomy	Friend	3.96 (.52)	3.87 (.51)	3.84 (.57)	3.82 (.52)
	Nonfriend	3.78 (.51)	3.90 (.55)	3.61 (.53)	4.04 (.42)

Note. Different superscripts within the same factor indicate significantly different means, tested with Student Newman-Keuls, $p < .05$. Type I: High Overall Support, Type II: Average Overall Support; Type III: Low Overall Support; Type IV: Mixed Support.

The Quality of the Relationship between Targets and their Friends

Our next question was whether adolescents with different types of perceived support would show differences in their friendships. That is, we examined whether Type of Target and Friendship Status interaction effects were present in the similarity and difference scores between targets and friends (targets*friends) versus targets and nonfriends (targets*nonfriends) for each of the dimensions of relational support, personality, peer group reputation, and adjustment domains. This was performed in three different ways. First, the similarities on dimensions were examined; second, we examined the differences on dimensions, and, third, we investigated the similarities in profiles of adjustment.

Dimension similarity. For the five relational support dimensions, the five personality dimensions, the five group reputation dimensions, and the four adjustment dimensions,

dimension similarity coefficients were the correlation over the total sample of targets' with friends' scores on a dimension and the correlation of targets' with nonfriends' scores on that same dimension. The target*friend similarity coefficients were then compared to target*nonfriend similarity coefficients for the total sample as well as among the four types of targets. Differences between the target*friend and target*nonfriend similarity coefficients were tested by comparing correlated correlation coefficients (Meng, Rosenthal, & Rubin, 1992). First we compared the correlations for the total sample, and after that for each relational support type separately. To decide whether a difference was significant we used the Bonferroni adjusted level of the conventional α-level (.05), corrected for the number of tests (19 for the total sample; 4 times 19 = 76 for the tests within the types), resulting in critical values of $p < .0013$ and $p < .0003$, for the total sample and the four types, respectively. For the results, see Table 5.3.

Relational support. Examination of the similarity coefficients on the five relational support factors showed that for the total sample, on Convergence of Goals targets were significantly more similar to their friends ($r = .32$) than they were to their nonfriends ($r = .02$). Closer examination revealed that this difference in similarity between targets*friends and targets*nonfriends was only true for the Type II targets, $r = .46$ and $r = -.29$, respectively. Furthermore, on Sibling Support the Type II targets turned out to be more dissimilar to their friends ($r = -.55$) than with their nonfriends ($r = .17$), a finding that is not clearly understood.

Personality. For the total sample, a significant difference between target*friend and target*nonfriend similarity coefficients was found for Extraversion, indicating that targets*friends were significantly more similar ($r = .31$) than targets*nonfriends ($r = -.10$). Examination of the similarities within the different types of targets revealed that the friendship effect was caused by a high similarity between Type I targets*friends ($r = .48$), compared to targets*nonfriends ($r = -.21$)

Peer group reputation. Higher similarity scores for target*friend than for target*nonfriend were found for all of the five peer group reputation dimensions. Separate analyses for the different types of targets showed that this higher similarity was significant on Aggression-Unattentiveness for the Type I and III targets, on Achievement-Withdrawal for the Type I, II, and III targets, on Self-Confidence for the Type III targets, and on Sociability for the Type I targets, and their respective friends, but never for the Type IV targets and their friends.

Adjustment. A significant difference in target*friend versus target*nonfriend similarity coefficients for the total sample was found for the addictive behaviors (i.e., drinking alcohol, smoking cigarettes, using drugs, and gambling), with targets being significantly more similar to their friends ($r = .53$) than to nonfriends ($r = .11$). Examination of the different types of targets revealed that this difference in similarity was true for Type I targets and their friends ($r = .69$), but not for the targets of the other three types. Furthermore, compared to targets and nonfriends, the Type I targets and friends were also more similar on delinquency ($r = .61$).

Table 5.3
Correlations between Target*Friend and Target*Nonfriend on Separate Dimensions

	Type of Target				
	Type I	Type II	Type III	Type IV	All
Relational Support					
Parental Support					
Target*Friend	-.23	.01	.09	.-.04	.16
Target*Nonfriend	-.14	-.07	.09	.59	.15
Friend Support					
Target*Friend	.26	.14	.03	.35	.22
Target*Nonfriend	-.04	.22	.18	.21	.10
Convergence of Goals					
Target*Friend	.14	.46	.17	.05	.32
Target*Nonfriend	.09	-.29	.07	-.10	.02
Sibling Support					
Target*Friend	-.04	-.55	.05	-.22	.18
Target*Nonfriend	-.27	.17	.00	.24	.02
Respect for Autonomy					
Target*Friend	-.05	.00	-.14	.05	.04
Target*Nonfriend	.01	.01	.26	.09	.06
Personality					
Extraversion					
Target*Friend	.48	.11	.10	.37	.31
Target*Nonfriend	-.21	-.07	.01	-.15	-.10
Agreeableness					
Target*Friend	.50	.12	-.06	.24	.25
Target*Nonfriend	.11	.21	-.04	.25	.17
Conscientiousness					
Target*Friend	.20	-.09	.30	.16	.10
Target*Nonfriend	.07	-.00	.31	-.23	.06
Emotional Stability					
Target*Friend	.35	.07	.04	.26	.20
Target*Nonfriend	.10	-.21	.27	-.17	.05
Openness					
Target*Friend	.15	.38	.10	.42	.23
Target*Nonfriend	.01	.12	-.07	.38	.08

(Table 5.3 continues)

(Table 5.3 continued)

	Type of Target				
	Type I	Type II	Type III	Type IV	All
Peer Group Reputation					
Aggression-Unattentiveness					
Target*Friend	.64	.63	.61	.46	.60
Target*Nonfriend	.02	.03	-.22	.19	-.02
Achievement-Withdrawal					
Target*Friend	.74	.66	.66	.53	.67
Target*Nonfriend	.02	-.36	.00	.20	-.05
Self-Confidence					
Target*Friend	.69	.36	.60	.57	.57
Target*Nonfriend	.32	-.18	-.03	.25	.09
Sociability					
Target*Friend	.55	.30	.33	.58	.44
Target*Nonfriend	-.13	-.05	.09	-.21	-.05
Emotionality-Nervousness					
Target*Friend	.63	.68	.55	.52	.60
Target*Nonfriend	.16	.46	-.08	.10	.17
Adjustment					
Psychological Well-being					
Target*Friend	.23	.03	.02	.34	.18
Target*Nonfriend	-.16	.30	.22	.18	.19
Addictive Behaviors					
Target*Friend	.69	.20	.57	.27	.53
Target*Nonfriend	.16	-.01	.19	.04	.11
Delinquency					
Target*Friend	.61	.42	-.08	-.11	.26
Target*Nonfriend	-.11	.17	.00	-.10	.00
Somatic Complaints					
Target*Friend	.27	-.16	.47	.23	.28
Target*Nonfriend	.06	.05	.01	.05	.05

Note. Correlations between Target*Friend and Target*Nonfriend that are underlined within same dimension and Type of Target are significantly different, $p < .0013$ (All) and $p < .0003$ (Types of Target), Bonferroni adjusted. Type I = High Overall Support, Type II = Average Overall Support, Type III = Low Overall Support, Type IV = Mixed Support.

Dimension difference. Dimension difference scores were the pair-wise difference scores between target and friend, and target and nonfriend for each dimension of the four domains. They were computed by subtracting respectively the friend scores and the nonfriend scores from the target scores on each of the dimensions. This resulted in 19 dimension difference scores, four or five for each domain, both for the target*friend dyads and for the target*nonfriend dyads. The 19 dimension difference scores for target*friend dyads were then compared to the 19 dimension difference scores for target*nonfriend dyads in a series of MANOVAs in which Friendship Status (Target*Friend versus Target*Nonfriend) was the within subject factor while Type of Target and Gender were the between subject factors.

Main effects for Friendship Status were present in Extraversion, F (1, 172) = 7.64, p < .01, and Self-Confidence, F (1, 177) = 12.55, p < .01. On both dimensions the targets and their friends were significantly more similar (i.e., had a significantly smaller dimension difference score) to each other than were the targets and nonfriends.

Interaction effects between Friendship Status and Type of Target were significant for Parental Support, F (3, 165) = 3.18, p < .05, and Respect for Autonomy, F (3, 160) = 2.96, p < .05. On Parental Support Type III targets, but not the targets of the other three types, were significantly more similar to their friends than to nonfriends, as indicated by smaller dimension difference scores. Moreover, on Respect for Autonomy, Type III targets had also significantly lower difference scores with their friends than with nonfriends, whereas Type IV targets and friends had significantly higher difference scores, that is, were more dissimilar, compared to Type IV targets and nonfriends.

Subsequently, in addition to the difference scores of the separate dimensions of the four domains, difference scores at the aggregate (profile) level were calculated. The absolute differences were averaged across all four or five dimensions, and difference scores for target*friend dyads were then compared to difference scores for target*nonfriend dyads in a series of three-way MANOVAs in which Friendship Status (Target*Friend versus Target*Nonfriend) was the within subject factor while Type of Target and Gender were the between subject factors. Table 5.4 (lower panel) presents the results.

Table 5.4

Profile Similarity and Difference Scores between Targets and their Friends and Nonfriends

	Type of Target			
	Type I	Type II	Type III	Type IV
Similarity				
Relational Support				
Target*Friend	.35 (.50)	.53 (.47)	.37 (.46)	.29 (.45)
Target*Nonfriend	.35 (.47)	.34 (.42)	.28 (.54)	.17 (.59)
Personality				
Target*Friend	.49 (.46)	.25 (.42)	.32(.42)	.46 (.45)
Target*Nonfriend	.13 (.45)	.14 (.47)	.33 (.51)	.37 (.41)
Peer Group Reputation				
Target*Friend	.64 (.31)	.47 (.48)	.50 (.44)	.55 (.47)
Target*Nonfriend	.13 (.57)	-.03 (.57)	-.08 (.53)	.12 (.56)
Adjustment				
Target*Friend	.21 (.61)	.03 (.64)	.14 (.61)	.23 (.57)
Target*Nonfriend	.13 (.65)	-.00 (.60)	.17 (.68)	.19 (.66)
Difference				
Relational Support				
Target*Friend	.45 (.28)	.43 (.25)	.69 (.30)	.62 (.21)
Target*Nonfriend	.55 (.45)	.50 (.27)	.62 (.34)	.61 (.24)
Personality				
Target*Friend	.75 (.39)	.82 (.38)	.86 (.38)	.80 (.32)
Target*Nonfriend	.96 (.55)	.81 (.36)	.81 (.39)	.93 (.47)
Peer Group Reputation				
Target*Friend	.13 (.06)	.15 (.07)	.15 (.06)	.14 (.06)
Target*Nonfriend	.20 (.10)	.21 (.09)	.23 (.09)	.22 (.08)
Adjustment				
Target*Friend	.48 (.39)	.43 (.36)	.65 (.49)	.62 (.43)
Target*Nonfriend	.55 (.61)	.46 (.46)	.77 (.66)	.66 (.57)

Note. Scores within same profile and Type of Target that are underlined are significantly different, $p < .01$. Type I = High Overall Support, Type II = Average Overall Support, Type III = Low Overall Support, Type IV = Mixed Support.

Because a small difference score was considered an indicator of similarity of the friendship between target and friend, it was expected that across the four Types of Target targets would

have significantly lower profile difference scores with their friends than with their nonfriends. A main effect of Friendship Status was present in the peer group reputation profile, F (1, 183) = 64.57, $p < .001$, with the difference scores for the target*friend dyads being significantly smaller than for the target*nonfriend dyads.

A significant interaction effect between Type of Target and Friendship Status was found for the personality profile F (3, 183) = 3.07, $p < .05$. Subsequent univariate analyses revealed that Type I targets and their friends were significantly less different from each other than Type I targets and nonfriends, whereas the difference scores between the targets*friends versus the targets*nonfriends did not differ significantly for the other three types. In addition, for the personality profile difference, the Friendship Status also showed a significant interaction with Gender, indicating that targets and their friends differed less on the personality profile than targets and nonfriends in girls, but not in boys. No friendship status main or interaction effects were found for the relational support and adjustment profile.

Profile similarity.

Next, to examine whether differences in friendships related to the types of perceived support were not only present in the similarity of the separate dimensions of the four domains as described above, but also in the similarity of the profiles based on these separate dimensions, profile similarity coefficients were calculated separately for each of the four domains of psychosocial functioning and separately for each target*friend and each target*nonfriend dyad. The profile similarity coefficients of the target*friend and the target*nonfriend dyads were computed by correlating a target's score on the dimensions forming a profile with the target's friend and with the target's nonfriend scores on the same dimensions. For each type, across the four domains this resulted in a total of four profile similarity coefficients for both the target*friend and the target*nonfriend dyads. A high profile similarity coefficient indicates high concordance between target and friend in the within-domain scores on the different dimensions of that domain. The profile similarity coefficients of the target*friend dyads were then compared with the profile similarity coefficients of the target*nonfriend dyads in a series of MANOVAs with the Friendship Status (Target*Friend versus Target*Nonfriend) as the within subjects factor and with Type of Target and Gender as between subject factor. The results are shown in Table 5.4 (upper panel).

We expected higher profile similarities between targets and friends than between targets and nonfriends. In addition to these main effects for Friendship Status, we also expected interaction effects with Type of Target.

A Friendship Status main effect was found for the personality profile similarity, F (1,174) = 5.63, $p < .05$, and for the peer group reputation profile similarity, F (1,177) = 63.44, $p < .001$, but not for the relational support and adjustment profile similarity. Overall, targets were much more similar to their friends than to nonfriends on the self-rated personality profile and

were also perceived by their classmates as being significantly more similar to their friends than to nonfriends in the peer group functioning profile.

The main effect for the personality profile was further qualified by a significant interaction effect with Type of Target, F (3, 174) = 3.07, $p < .05$. Subsequent univariate analyses revealed that Type I targets had significantly higher profile similarity with their friends than with their nonfriends, whereas these differences were not significant for the targets of the other three types (see Table 5.4).

Discussion

The general aim of the present study was to investigate individual differences in configurations of adolescents' perceived relational support by applying Hinde's (1997) social complexity model. Following this model, we examined adolescents at different levels of social complexity, that is, we investigated the associations of their friends' individual characteristics and the quality of their friendships with adolescents' perceived relational support. In addition, we selected variables that referred to various levels of social complexity to qualify these friends' characteristics and the quality of the relationships.

According to Hinde's model, variables can have different meanings at different levels of social complexity. Similarly, the selection of samples is usually based on criteria that are also related to various levels of social complexity, and the selection is, therefore, likely to influence the results. For example, a sample that has been selected on the basis of the participants' personality may lead to other results than a sample that has been selected on the basis of the participants' relationships or group membership. This does not necessarily limit the value of the results found, but does point to the importance of considering the social context, or levels of social complexity, of both the variables and samples used.

In the present study, the three samples (targets, friends, and nonfriends) were selected at the relationship level of the social complexity model, that is, on the basis of specific relationships they had. The selection criteria were not similar for all of the three samples. The targets were selected because they had a father and a mother, at least one sibling, and a mutual best friend in class, the friends were selected because they had a mutual best friend in class, and the nonfriends were selected because they were unrelated to both targets and friends, and could, therefore, be expected to have less often a mutual friend. This selection may have influenced the results, in that these three samples may have been different on variables that are in some way related to relationships or maybe even to the support that individuals perceived from their relationships. As was found, the nonfriends turned out to be less extraverted, less self-confident, and less sociable - all being characteristics related to the interpersonal domain- than targets and friends. This clearly shows the relative sensitivity of results to the social complexity.

Moreover, describing or qualifying the different levels of the social complexity should be done at that very level. For example, relationships should be described at the relationship level, and not in terms of the perceptions of the relationship partners concerning the relationship. In the present investigation, we avoided this measurement problem by focusing on essential characteristics of relationships, that is, by using similarity scores between targets and friends on different domains of adolescent functioning.

Relational Support

Using a person-centered approach to the adolescents' friends perceived support, it was found that adolescents were more likely to have friends who reported the same configuration of perceived support as they did themselves. This was true for all four types of adolescents, notwithstanding the fact that, compared to the distribution in the total sample, there were more friends who perceived a high or average support (Types I and II) and less friends who perceived low or mixed support (Types III and IV). Despite the fact that the friends consisted of a subsample perceiving relatively high support, and the targets of a subsample perceiving relatively lower support, the types of perceived support of friends and targets were more often similar than for the targets and the nonfriends.

Examination of the different support dimensions, however, showed that only the support the friends perceived from their parents was indicative for the differences in the target adolescents' perceived support. The perceived support that friends experienced from their parents is an important, in fact the only, support factor distinguishing the different types of target adolescents. Adolescents who perceived the highest, as well as adolescents who perceived the lowest support from their parents, were likely to have friends who did the same. It is possible that adolescents select friends who have a similar kind of relationship with their parents, but it is also possible, and maybe more likely, that adolescents and friends influence one another (cf. Berndt & Keefe, 1995; Berndt, 1992) with respect to their perceptions of parental support. Indeed, similarities in attitudes, values, and social perceptions between friends have been found to exist (e.g., Berndt, 1992; Deutsch & Mackesy, 1985), but probably not in all adolescents to the same degree.

Interestingly, adolescents and their friends never perceived the same level of support from one another, irrespective of the adolescents' type. Friends of target adolescents who reported a very high friend support (Type I), in turn, did not perceive as high a support from them. Also, the friends of the target adolescents who reported a low support (Type III) did not report the same low support in return. When the adolescents' low perceived support had been based upon a friendship that was in fact low in quality, it could have been expected that the friends, in turn, would also have reported a low support from the target adolescents. This was not the case; the support which friends perceived from the adolescents was unrelated to the support that the adolescents perceived from them. The Type III adolescents not only perceived low support from their friends, but experienced all of their relationships with their providers (father,

mother, sibling) as not very supportive. Attachment theory (cf. Bowlby, 1973) suggests that the assumptions and expectations that infants hold about others are internalized in an internal working model and carried forward into subsequent relationships. It may be that the Type III adolescents have an internal working model in which relationships are perceived negatively (cf. Bowlby, 1988; Rogosch & Cicchetti, 1994), which also may lead to perceptions of low support from relationships in general, and in our case from parents, siblings, and best friends. We know now that the friends of those adolescents not necessarily perceive the same low level of support from them.

In sum, it seems that the support one friendship partner perceives through his or her friendship is more idiosyncratic, and unrelated to the support the other friendship partner experiences from the same friendship. In other words, friendships seem to be differently supportive for the different participants, caused by differences in their perceptions, that is, in their psychological processes (cf. Hinde, 1997).

Personality

In contrast to the friendships of all other types of adolescents, the adolescents of Type I and their friends were the only ones who had a similar self-image in terms of the Big Five profile. Given the fact that the Type I adolescents were found to have the most positive personality self-image (Scholte et al., submitted), this indicates that their friends viewed themselves in a positive way too. Looking at the separate dimensions of the personality profile, Type I adolescents and their friends were most similar on Extraversion. The adolescents and their friends of the other three types, however, did not have any similarity on the personality profile, nor on any of the separate factors. When we considered personality as an individual characteristic on which friends were expected to differ from one another according to the type of the target adolescents, the friends' personality did not seem to be related to individual differences in adolescents' configurations of perceived support.

Peer group reputations

The peer group reputation was the most important, in fact the only, domain in which similarity between adolescents and their friends was related to the differences in adolescents' perceived support (cf. also Haselager et al., in press). According to the classmates, adolescents of Types I, II, and III (high, average, and low overall support, respectively) were similar to their respective friends on Achievement-Withdrawal, that is, in their orientation towards academic performance and their level of social inhibition.

In addition, the Type I adolescents, as well as the Type III adolescents, also resembled their respective friends on Aggression-Inattentiveness. As was found in the previous study, adolescents of both types scored low on behaviors related to these dimensions; classmates perceived the Type I and Type III adolescents' friends to be similarly low in aggression, irritability, laziness, and inattentiveness. Furthermore, the adolescents of Type I and their

friends were perceived by their classmates as being similar in sociability, that is, both liked being with others and were friendly and intelligent. In sum, classmates seem to be able to distinguish adolescents and their friends on each of the five dimensions of the peer group reputation. This was less true, however, for the Type IV adolescents (mixed support). In contrast to the adolescents and their friends from the other three types, the relationship between the Type IV adolescents and their friends could be distinguished from the other relationships in that there were no significant similarities on any of the different dimensions on which similarities had been observed for the other friendships. According to their classmates, the Type IV adolescents were most aggressive and inattentive, least oriented towards academic achievement and the least socially withdrawn, but also relatively sociable (Scholte et al., submitted). Their friends, however, did not as strongly resemble them in these specific characteristics as did friends and target adolescents of the other three types.

The Type IV adolescents did match their friends on peer group functioning, however, when the classmates' total image of them, that is, their profile, was examined. It is likely that classmates not only distinguish adolescents and their friends on the separate reputation dimensions, as was the case for the Type I, II, and III adolescents and their friends, but also on their total functioning, as shown by the Type IV adolescents and friends. This finding clearly underlines the importance of examining profiles in addition to the separate dimensions (cf. Rogosch & Cicchetti, 1994). This seems particularly relevant in peer perceived group functioning. Adolescents not only have a detailed view or image of their classmates which is differentiated by the different reputation dimensions for the different types, but are also likely to have a more global picture of other classmates' functioning. They evaluate the adolescents' behaviors in terms of contributions to the group goals, by comparing them with other classmates. The profiles of adolescents peer group functioning, although based on separate reputation dimensions, seems in addition to be more than the sum of those dimensions, and indicates the adolescents' relative position in the group, as perceived by the classmates. In our study, classmates seemed perfectly able to distinguish the different types of adolescents and their respective friends. This is in line with the findings of Cairns et al. (1988) on social clusters ('cliques') that showed that there was considerable agreement among adolescents in their perceptions of whom was associated with which cluster. In our study this not only held for the adolescents and their friends who were, according to their classmates, most aggressive, but also for the adolescents and their friends who were very low in aggression.

Again, as was true for the personality factors, at the individual level (i.e., as friend characteristics) the peer group reputations did not seem to be related to differences in the adolescents' configurations of perceived support.

Adjustment

Of all adolescents, only the Type I adolescents resembled their friends on several dimensions of adjustment. They both expressed low levels of addictive behaviors and

delinquency. When looking at the friends' individual characteristics on adjustment, however, these too, like the personality and peer group reputations, were unrelated to the differences in adolescents' perceived support.

Although gender differences in friendships have been reported in several studies (e.g., Buhrmester & Furman, 1987; Furman & Buhrmester, 1992), in our study no differences between boys and girls were found in the patterns of individual characteristics and relationship characteristics related to types of perceived support. It seems that, even if girls in general were to perceive more support from their best friends than boys do, also their individual characteristics are unrelated to differences in their perceived support. For girls as well as for boys it is the friendship characteristics that seem to be most relevant to these differences.

To conclude, the present study showed that friendship characteristics, qualified by differences in similarity, both for boys and girls, were related to individual differences in adolescents' perceived relational support, but that, at the individual level almost all investigated friend characteristics were not. The only exception was perceived parental support. The relationships the adolescents had with their best friends were, at the individual level, only influenced by the relationship the friends had at home with their parents (cf. Hinde, 1987). Neither the personality of the friends, nor the friends' peer group functioning or adjustment (e.g., delinquency, addictive behaviors) as individual characteristics were related to the different types of perceived support of adolescents. Several studies have found that adolescents and friends are similar on several domains, for instance, on aggression (e.g., Cairns et al, 1988), delinquency (Giordano et al., 1986), sociability (Gest et al, 1991), academic achievement (Kupersmidt et al, 1995), and antisocial behavior (Haselager et al, in press). The present study showed that these friend characteristics are not relevant, however, for explaining differences in the profiles of the adolescents' perceived support. It seems that the ways adolescents and friends describe themselves are relatively unrelated to each other when compared to the self-descriptions of nonfriends, and that the similarity between these self-reports is unrelated to individual differences in perceived relational support. In contrast, whereas the adolescents' and friends' self-reports seem to be of little relevance, the peer reports seem to be of special importance. Similarities existed primarily in the peer evaluations of the adolescents and friends peer group behaviors. In their actual behavior, at least as perceived by all of their classmates, they are much more alike than they are in their self-descriptions, and it is this peer perceived similarity that is related to the individual differences in target adolescents perceived relational support.

The present investigation focused on one particular relationship in adolescence. Adolescents have many relationships with different persons (father, mother, siblings, teachers), and each of these relationships has a life of its own, with not just the relationship being different from other relationships, but also the adolescent him or herself. Youniss and Smollar (1985), for example, found that adolescents described themselves differently in

different relationships. This underlines the need to investigate adolescents' other relationships in relation to their perceived support as well. The design of studying differences in adolescents' perceived relational support that has been used in this study seems promising, and seems valuable to apply for other relationships too.

Chapter 6

General Discussion

The purpose of this chapter is to discuss the results of the three empirical studies, using Hinde's (1997) model of social complexity as a conceptual framework (see Figure 1.1). Within this framework the level of the psychological processes, the level of individual behavior, the relationship level, and the group level are of interest in interpreting the results. These levels are related to phenomena that are examined in the three empirical studies. The studies represent three general topics that are addressed in this chapter by answering a number of research questions.

The first topic concerns the person characteristics of the adolescents. This is answered by examining their self-image in terms of their self-reported personality (level of psychological processes), and the way they are described by their classmates in terms of group reputation (group level). The self-image and the peer reputation were further used throughout the other two chapters to describe and identify the adolescents. The second general topic concerns questions related to adolescents' perceived relational support (relationship level) and is addressed by investigating the characteristics of the perceived support, by investigating in what configurations adolescents' perceived support occurs, how perceived support is related to adjustment (level of individual behavior), and how developmental changes affect perceived support and adjustment. The third set of questions focuses on who the friends are who provide support and how the friendships of the adolescents with different configurations of perceived support look like. In the remainder of this chapter we will answer these questions using the model of social complexity as a guideline where it is appropriate.

Adolescents' personality and group reputations

In order to examine the self-image of the adolescents in chapter 1, we used a 25-item self-report questionnaire, in which the Big Five factors were expected to be represented. Principal component analysis and confirmatory factor analysis indeed revealed the Big Five factors, a finding that is of considerable importance because, at the time this study was performed, there seemed to be virtually no other study, except a study by van Lieshout and Haselager (1994), that had shown the existence of the Big Five factors in adolescents' self-reports. Subsequently, the same items as in the self-report were used in a peer nomination measure in the participants school classes. There were two contrasting hypotheses about the factors that would emerge from a factor analysis. On the one hand, based on a more or less similar study (Norman, 1963) that revealed the Big Five factors, we expected to replicate this finding and obtain similar factors as were present in the self-reports. On the other hand, according to Hinde's model,

different factors should be expected. The reason for expecting different factors is that, according to the model, the context or the level gives meaning to phenomena: At different levels the same phenomena can have different meanings. Because self-reports refer to the individual level and peer nominations to the group level, the factors that emerge from the two measures do not have to be similar. Indeed, the five factors that were found in the peer nomination measure diverged completely from the Big Five factors. These peer nomination factors were highly interpretable, and suggest that classmates do not evaluate each other in terms of their personality, but in terms of the contribution to group goals. It showed that the same behavior, even when measured with the same items, has a totally different meaning at different levels. The five factors referred to the individual's peer group reputation with some of the factors resembling the three factors found in the Revised Class Play studies (Masten, Morison, & Pellegrini, 1985; Morison & Masten, 1991) that captured children's' peer reputation. The reason why we found five factors whereas Masten et al. found three is probably due to the item-pool used: our items not only referred to interpersonal behavior as was the case with Masten et al., but also to intellect and conscientiousness. This suggests that behaviors that do not directly refer to interpersonal exchange are nevertheless evaluated by classmates in terms of contribution to group goals.

In addition, we examined the contribution of the self-reported personality factors (self-image) and the peer reputation dimensions to the prediction of acceptance and rejection by their classmates. It showed that all of the peer reputation dimensions were very relevant in predicting peer acceptance and rejection. Most of all, the adolescents that were most sociable and self-confident were most likely to be accepted, whereas the adolescents that were perceived as most aggressive and inattentive were most likely to be rejected. In contrast, the way in which the adolescents described themselves was unrelated to how they were accepted or rejected by their classmates. For example, even when adolescents described themselves as being very friendly and considerate, it did not predict whether they were accepted by their classmates. As is also suggested by Hinde's model, this underlines the importance to distinguish between different levels, and not to make inferences about one level (e.g., about peer acceptance at the group level) by measurements at another (e.g., personality at the individual level), but only by measurements at the same level (e.g., reputation dimensions).

Relational Support, Adjustment, and Development

The second general research topic concerned the adolescents' perceived relational support and was addressed by examining the characteristics of the adolescents' perceived support, the existence of configurations of perceived relational support, the relation between perceived support and adjustment, and developmental effects in perceived support and adjustment.

Perceived relational support: factors, types, and adjustment

Various dimensions can be distinguished within relationships. Hinde (1997), for example, specifies and discusses 10 dimensions. In chapter 4, we focused on one important dimension of relationships, namely on perceived relational support. We did this by using two different approaches, a variable-centered and a person-centered approach. In the variable-centered approach, we integrated two competing models that exist in the research on perceived support, the provision and the provider model, into a provision/provider model, in which the provisions were five support dimensions labelled Emotional Support, Respect for Autonomy, Quality of Information, Convergence of Goals, and Acceptance. Individuals are involved in a great number of different relationships. Using a network approach enables one to compare several relationships with each other. We considered the relationships that adolescents have with their nuclear family members and with their best friends to be most salient. The providers were, therefore, the fathers, mothers, special siblings, and best friends. As a result, only adolescents who had all of these three family members and did or did not have a best friend were included in the study. Factor analysis of these five dimensions for each of the four providers showed that neither the provision nor the provider model could fully account for the data. It resulted in five support factors, three of which were provider specific (Parental support, Friend support, and Sibling support), and two were provision specific (Convergence of Goals and Respect for Autonomy).

Next, we investigated, by applying a person-centered approach, whether and how these factors of perceived support occurred in configurations, that is, whether subgroups or types of adolescents existed who differed in their pattern of support perceived from their mothers, fathers, special siblings, and, when present, best friends. In addition, we examined whether and how these types differed in their personality, peer reputation, and adjustment. Five types of adolescents were identified, who clearly differed in ways that were related to different levels of the social complexity. They not only differed in their configurations of perceived support (relationship level), but also in their personality (level of psychological processes), adjustment (level of individual behavior), and reputation dimensions (group level). For the first three types, that is Type I (High Overall support), Type II (Average Overall Support), and Type III (Low Overall Support) the level of support seemed to be generalized across the support factors. In addition, the way they reported on their perceived support was more or less similar to their self-reported personality and adjustment. For example, the adolescents who reported a high overall support (Type I) also reported a high, positive adjustment (e.g., not feeling lonely, not brooding, having a high self-esteem, not using much substances, low involvement in delinquency), and had a very positive self-image in terms of the Big Five personality factors. Similarly, the adolescents perceiving average or low overall support, also reported an average or low adjustment and average or low self-perceptions. For the fourth type of adolescents (Type IV, Mixed support) the support was not generalized across the providers. In contrast to all other adolescents, they showed a mixed configuration of perceived support. They

experienced extremely low support from their parents, a relatively high support from their best friends, and average to low support on the other support factors. They also showed a somehow 'mixed' self-image. They described themselves as extraverted and agreeable, but not conscientious. Regarding their adjustment, they turned out to be very distinct. They were most involved in problematic behaviors: They used most substances (alcohol, cigarettes, and drugs), and reported the highest involvement in overt and covert delinquency (e.g., fighting, stealing), and conflict with authority (e.g., quarrelling with parents or teachers). Furthermore, they worried most about their home situation and liked least to be at home. The fifth type consisted of adolescents who had no best friends. They perceived average support from their parents and special siblings. Their self-image was rather negative: they described themselves as very introverted and not agreeable, and not emotionally stable, but at the same time perceived themselves as very conscientious. Their adjustment was average, but they reported feeling lonely.

What becomes clear from these findings is that for the vast majority of the adolescents (Types I, II, and III represented 84% of the adolescents in the sample) the appreciation of their perceived support seems to be similar to the appreciation of their other self-reported characteristics, being their personality and adjustment. Or, in other words, the affective and cognitive "content" of their self-reports seems to be generalized across their perceptions at different levels of the social complexity model, that is across the psychological processes (personality) and individual behavior (adjustment), as well as relationships (perceived support). This points to an important issue. In each of the levels of the social complexity the individual is, at different levels of action, still present, that is, as the perceiver at the level of psychological processes, as the actor at the level of individual behavior, and as a partner in relationships. This issue of the individual being present at the different levels of the social complexity seems to be somewhat subdued in Hinde's model. Although Hinde clearly states that successive levels influence each other, the different levels are nevertheless regarded as more or less separate entities, in which the individuals are submerged and no longer traceable. In the individuals' self-reports, at any level, the individual 'emerges' again. This point to an important issue. Hinde's model is theoretically comprehensive, but the measurement of the different levels does not perfectly match this model. What is captured by self-reports is not only to be considered as referring to a specific level but also as referring to the individual who is involved, and represents more the individual-level integration. From the perspective of an individual, for example, the relationship or group levels in fact imply an individual's role at the relationship level or at the group level.

Moreover, this point also underlines the importance of not relying solely on self-reports when inferences about characteristics at specific levels are made. In that sense, self-reports differ from peer nominations. Peer nominations represent the perspective of the group on the individual group member. Taking this into consideration, we, therefore, used the peer

nomination procedure to assess the adolescents' peer group functioning. We were interested whether the adolescents of the different types would also differ on the peer-perceived reputation dimensions. The results showed that for almost all of the adolescents, except for the Type III (Low support) adolescents, their self-image corresponded with the perceptions the classmates had of them. The Type I adolescents (positive self-image) were perceived by their classmates most positively: they were perceived as very sociable and self-confident. The Type II adolescents ('average' self-image) were also perceived by their classmates as being average: they were never perceived as being very high or very low on any of the five peer reputation dimensions. In contrast to all other adolescents, the adolescents who perceived a low overall support (Type III) had a self-image that did not correspond with the image their classmates had of them. When their self-image had been based on their actual behavior, these adolescents would have been very introverted, not agreeable, not conscientious, emotional instable, and not intelligent and open to new experiences, and their classmates would have undoubtedly perceived and evaluated them in a similar way. However, according to the classmates these adolescents did not behave in such a way at all. In all types, except Type III, different perspectives, that is, the individual's perspective and the group perspective resulted in congruent views, whereas both perspectives resulted in different views in Type III. The Type IV adolescents (extraverted and agreeable, but not conscientious) were evaluated by their classmates also in a very similar way. According to the classmates they were irritable, quarrelsome, lazy and absent-minded, as well as not oriented towards academic achievement and persistent (not conscientious), but also enthusiastic (extraverted) and considerate (agreeable). The Type V adolescents (conscientious but introverted and not agreeable) were perceived as being most hard working and persistent, but at the same time most shy and socially withdrawn. In addition, they were evaluated as being the least sociable.

There is one important implication of the findings mentioned above. It seems that there are adolescents whose self-reports (on personality at the level of psychological processes) resemble their adjustment behaviors (at the level of the individual behavior), and adolescents for whom there is a discrepancy between their self-reports on personality and their actual behavior, as is shown by the Type III adolescents. The problem here is that, from the self-reports only, it can not be clear to an outsider (e.g., a researcher) which self-reports bear resemblance with behavior and which do not.

Developmental changes in adjustment and perceived relational support

Adolescence is a time of rapid biological, cognitive, and social developmental changes that may affect the adolescent's emotions, thoughts, behaviors, and, thus, also his or her relationships. Because of this importance, the developmental changes in perceived relational support and adjustment were also examined in chapter 4. This was performed by studying

these developmental changes in relation with adolescents' adjustment, and then partialling out these effects from the relation between perceived support and adjustment. By doing so, we were able to obtain a clear picture of the relation between perceived support and adjustment taking into account developmental processes in adolescence. The findings concerning the differences in adjustment for the different types of adolescents described above were based on analyses that controlled for the effects of the developmental markers.

In order to capture the different developmental changes, four developmental markers that varied from generality to specificity were used. These markers were: chronological age, school grade level, pubertal maturation, and appreciation of pubertal maturation. For each marker, the effects of the more general markers were partialled out (e.g., for examining the effects of school grade, the effects of chronological age were partialled out first; for examining appreciation, the effects of the other three markers were partialled out first). Partialling out the effects of the more general markers (e.g., chronological age) from the more specific markers (e.g., pubertal maturation) enabled us to disentangle the unique contributions of each of these markers to adjustment. The rationale behind the use of the four markers was that adolescents of the same age can be in different school grades; adolescents in the same school grade can also differ in their pubertal maturation; and adolescents in the same grade and with the same pubertal maturation can differ in their appreciation of their maturation. The developmental changes occur at the level of psychological processes but may be specifically oriented on other levels. For example, school grade level as a developmental marker typically refers to the level of the group of the school class and pubertal status and chronological age lead to different positions and expectations at the society level. First, the developmental effects in adjustment will be described, and subsequently the effects in perceived support.

The main findings were that chronologically older adolescents used more substances and reported more involvement in the different forms of delinquency. Adolescents in higher grades (regardless of age) had a less positive self-image in terms of the Big Five personality factors then adolescents in lower grades. Late maturing adolescents felt more lonely, and described themselves as introverted and not agreeable. This self-image was confirmed by the image the classmates had of them: according to the classmates these late maturing adolescents were most oriented towards academic achievement, were socially inhibited and shy, not self-confident, and not sociable. Finally, the adolescents who had a positive appreciation of their pubertal maturation--whether early, on time, or late-- had a positive self-image and a higher psychological well-being (felt less lonely, brooded less, had a higher self-esteem) than the adolescents who had a more negative appreciation.

With respect to adolescents' perceived support, both in terms of the support dimensions and the different configurations (types of adolescents), it turned out that the level of perceived support remained relatively unchanged across development. Of the five support dimensions,

only Parental Support seemed to change over time: older adolescents reported lower support from their parents than younger adolescents. Due to this decrease in perceived parental support, older adolescents perceived the same level of support from their best friends as from their parents. Our data suggest that the friends are not more supportive than parents, as was found in other studies (e.g., Furman & Buhrmester, 1985), and that parental support does decline with age in adolescence, which is in contrast to the widely held view that this decrease does not take place (cf. Steinberg, 1993). Regarding the different types of adolescents, the lack of change of perceived support across development was confirmed. Differences in either of the four markers was found only for a small, specific group of adolescents, namely the Type IV adolescents (9% of the sample). They were found to be older in age and showed an earlier pubertal maturation. As was described before, these adolescents used most substances and were also involved most in authority conflict (e.g., quarrelling with parents and teachers) and in delinquent behaviors like staying out all night, theft, or physical fighting. It seems likely that these early maturing adolescents (significantly more girls than boys) feel and behave in accord with their biological age, but probably not in accord with their chronological age. Other studies (e.g., Magnusson, Stattin, & Allen, 1985; Stattin & Magnusson, 1990) also showed that early maturing girls were more likely to engage in behaviors that older adolescents usually express. These adolescents' behaviors and attitudes are likely to affect the relationships they have with parents, who usually treat their children according to their chronological age, and probably do not approve of their behaviors. It seems likely that the relationships these adolescents have with their parents are full of conflict, given the fact that the adolescents report having conflicts with parents (and teachers), and that they worry most about their home situation and like least to be at home. The low support they perceive is probably due to their actual dissatisfying or conflicted parental relationships and not only to their perceptions and representations of their relationships.

All in all, it shows that for the vast majority of the adolescents (90%) the perceptions of support remain relatively unchanged across development (cf. Sarason, Sarason, & Shearon, 1986), and that they are established prior to adolescence, maybe even in childhood. This is in line with Hinde (1997), who suggests that the self-concept incorporates among others the (relatively) stable views one has of one's appearance, behaviour, traits, competencies and also of one's relationships, and that this self-concept is relatively stable over time.

Friend and friendship characteristics

In chapter 4 we found five types of adolescents that not only differed in their configuration of perceived support, but also in their psychosocial functioning. The adolescents of the first two types (Types I and II) seemed to function well or reasonably well. The functioning of the adolescents of the other three types could be reason for concern. They either had a very negative self-image and a low general psychological well-being (Type III adolescents), or they were very socially isolated and felt lonely (Type V), or they showed problematic behavior,

were aggressive and not motivated in school (Type IV). This raises the question who the providers or relational support are of these different adolescents, and related to this, what can be said about the characteristics of their relationships

In every relationship, two individuals are involved who together merge into one relationship (Hinde, 1997) This also holds for perceived support. In perceived support, one can distinguish between the individual who perceives the support (target), an individual who provides the support, and the relationship between the target and provider.

In chapter 5 we have focused on one relationship that is of specific importance in adolescence, namely the friendships between (mutual) best friends As a consequence of this focus, the adolescents who had no best friend were dropped from this study The first question we wanted to answer was who the friends of the different types of adolescents were. On the basis of the existing similarity literature on adolescents' friendships, we expected that the friends would describe themselves similarly and show similar behaviors as the respective adolescents and, thus, that similar differences between the friends would be present as was true for the adolescents. Contrary to our expectations, however, the friends did not differ from each other on those characteristics on which the adolescents differed, with two exceptions. When looking at the friends' configurations of perceived support -- that is the main feature on the basis of which the targets were distinguished-- it showed that they were related to the configurations of the adolescents' perceived support. For example, adolescents of Type I (High overall support) were more likely to have friends who also reported high support from all of their providers Examining the separate support dimensions revealed that on Parental support, the friends of the adolescents who perceived a high support (Type I) or a very low support (Type IV) perceived the same level of support as the respective adolescents.
The findings suggest that further friend characteristics, either on the level of psychological processes (personality), on the individual level (adjustment behavior), on the relationship level (on most of the support dimensions), or on the group level (reputation dimensions) are not relevant in predicting differences in adolescents' perceived support.

Moreover, the friends did not report the same level of support from the adolescents as the latter did from them. This was true for all adolescents, irrespective of their level of friend support With regard to the Type III adolescents, who, in contrast to all other adolescents, reported a low support from their friends, this is of special importance It seems that their level of support is probably due to their perceptions, and not to the 'actual' relationship they have with their friends, because in that case, the friends would be likely to have reported a low support too. The important implication of the above finding is that the same relationship can have different meanings for the two participants and that the same relationship can be differently supportive for the different participants

Subsequently, we addressed the question what the characteristics of the friendships of the different types of adolescents were In order to avoid relying solely on self-reports, which, as

we have seen, is not always appropriate when measuring characteristics of higher levels of the social complexity, we assessed information at the relationship level itself. We did so by using relationship characteristics, that is, similarity scores between adolescents and their friends. The main findings were that the characteristic that contributed most to the differences in perceived support was the similarity on the reputation dimensions. Except for the adolescents of Type IV, adolescents of the different types are similar to their friends on various reputation dimensions. In addition, the Type I adolescents and their friends are similar on Extraversion, addictive behaviors, and delinquency. In general, however, similarities between adolescents and their friends on other domains than group reputations (i.e., personality, perceived support, and adjustment) are unrelated to differences in the adolescents' perceived support.

As was mentioned, in an adolescent's perceived support from a best friend, three aspects can be distinguished: the adolescent him or herself, the friend, and their friendship. The findings from chapter 5 suggest that, except for the friends' configurations of perceived support, the characteristics of the friend are not very relevant in predicting the adolescent's support. For most of the adolescents, the characteristics of the relationship seem more promising to do so, especially the similarity on group reputations. It is assumed in the social complexity model that inferences about characteristics of one level are best made by measures of that same level. This was more or less confirmed by the fact that some relationship characteristics (i.e., the similarity on group reputations) are found to be related to the differences in adolescents' perceived support. On the other hand, most of the relationship characteristics (similarities) were unrelated. This suggests that, at least for relational support from best friends, the adolescents' self-reports represent less an indicator of a dimension of a relationship but more an individual's perception and representation. Differences in perceived support seem, therefore, for the most part to be related to differences between the individuals, and only very little to other elements.

This investigation showed the importance of distinguishing different levels of social complexity in the study of social relationships. Furthermore, the use of a person-centered approach has turned out to be valuable and the findings seem promising in broadening our understanding of adolescent relationships and perceived relational support.

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Summary

This dissertation investigated the relationships that adolescents have with a number of important persons in their environment, and, more specifically, the support the adolescents perceived from these relationships.

Relationships do not exist in isolation, but are embedded in a social context, in which different levels can be distinguished. In this dissertation Hinde's (1997) model has been used as a theoretical framework to elaborate this social embeddedness. The social complexity model distinguishes six levels that mutually influence each other and that range from the psychological processes within an individual to the society at large. According to the model every level has characteristics that are unique for that level and that can not predicted by characteristics of the lower levels. For example, cohesion and hierarchy within a group can not be predicted by the relationships between the group members or by characteristics of the individuals. Furthermore, it is the context of the levels that gives meaning to phenomena; the same phenomena can have different meanings at different levels.

Four levels of the social complexity are of special relevance for this dissertation because a number of aspects of the three empirical studies that will be presented are related to these levels. The four levels are the level of the psychological processes within an individual, the level of the individual behavior, the level of relationships, and the group level.

In this dissertation three empirical studies will be presented that are placed within the theoretical framework in chapter 1. That chapter serves as a theoretical introduction in which Hinde's model is described and in which aspects of the three studies are related to aspects of the model.

The three studies are executed as the fourth measurement wave of a longitudinal research project of the department of Developmental Psychology of the University of Nijmegen (The Netherlands) that started in 1986 and that was continued in 1987, 1991, and 1994, the year in which the fourth measurement wave took place. In chapter 2 the first three measurement waves are described in short and the fourth measurement wave is described extensively. It will pay attention to the procedure, the subjects, and the measures.

Chapter 3 describes an empirical study of the adolescents' self-image in terms of their self-reported personality and the way the adolescents are described by their classmates. The subjects were 2001 adolescents from second and third grade secondary education school classes. To investigate the self-image a 25 item self-report questionnaire was used. Principal component and confirmatory factor analyses revealed the Big Five personality factors. These factors were Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness/Intellect. This finding is promising because the study was one of the first that studied these factors using adolescent self-reports.

The same items as in the self-report questionnaire are used in a peer nomination questionnaire, in which the adolescents were asked to nominate at each item three to five classmates that best fitted that item. Factor analysis did not reveal the Big Five factors that were expected on the basis of earlier research (Norman, 1963) that used the same nomination procedure, but it revealed five different factors. These factors were Aggression-Inattentiveness, Achievement-Withdrawal, Self-confidence, Sociability, and Emotionality-Nervousness. They represent peer group reputation dimensions. Some of these factors strongly resemble factors that have been found in research on children's group reputations. The Big Five factors were not related to acceptance or rejection by classmates; the peer group reputations, however, were. Especially Self-confidence and Sociability were related to peer acceptance, Aggression-Inattentiveness to peer rejection. The conclusion of the study is that adolescents evaluate themselves in terms of the Big Five factors, but classmates evaluate each other in terms of their contributions to the group goals and not in terms of their personality characteristics.

Chapter 4 describes an empirical study of the support that adolescents perceive from their mothers, fathers, special siblings, and, when present, best friends. This has been investigated by a group of 2262 adolescents that have been selected from the total sample of 3361 adolescents because they had a mother, a father, a special sibling, and a best friend ($n = 2104$), or because they had the three family members but not a best friend ($n = 158$). The perceived support has been examined in two ways: by applying a variable-centered approach and by applying a person-centered approach.

Within the variable-centered approach a multiprovision-multiprovider model has been used, in which different dimensions of support have been distinguished for each of the different persons mentioned above. Factor analysis showed five factors, three of which were provider specific (Parental support, Friend support, Sibling support), and two were provision specific (Convergenge of Goals and Respect for Autonomy). Except Parental support, all of these factors remained unchanged over time. On Parental support older adolescents (16- and 17-year olds) scored lower than the younger adolescents. In the person-centered approach it was examined whether subgroups or types of adolescents existed who differed in their configurations of support perceived from the four persons mentioned above. Five types of adolescents were found. For the first three types the level of perceived support seems to be generalized across all of the four persons. Type I adolescents (35% of the sample, High support) perceive a high support from all persons, Type II adolescents (27%, Average support) and Type III adolescents (22%, Low support) perceive an average and low support from all persons. The Type IV adolescents (9%, Mixed support) diverge from the first three types because they show a mixed pattern of support. They perceive a very low parental support, a low to average sibling support, but a relatively high support from their best friends. The Type V adolescents (7%, Nonfriend group), who were added as a separate group, do not have a best friend and perceive an average support from their family members. The five types not only

differ in their perceive support but also in their functioning. The Types I, II, and III adolescents have positive, average, or low scores with respect to their self-image (Big Five factors), well-being (self-esteem, brooding, loneliness), substance use, and involvement in delinquent behaviors, respectively. The Type IV adolescents have a mixed self-image (Extraverted and Agreeable, but not Conscientious) but report a low well-being, a high substance use, and the highest involvement in delinquent behaviors. The Type V adolescents have a relatively negative self-image but perceive themselves as very Conscientious, report a relatively positive well-being but at the same time feel lonely, and do not use much substances and are not involved much in delinquent behaviors. The adolescents also differ in their peer group functioning. The Type I adolescents are, according to their classmates most Self-confident and Sociable. The Type IV adolescents are most Aggressive and Inattentive, the least Achievement oriented and the least Withdrawn, but also very Sociable. The Type V adolescents are the most Achievement oriented and Withdrawn, and the least Sociable.

It was further investigated whether developmental effects were present in the five types. To answer this question, four developmental markers were used that represented developmental changes on different domains. These markers were chronological age, school grade level (development in group functioning), pubertal maturation (biological development), and appreciation of the pubertal maturation (psychosocial development). The five types turned out to be relatively insensitive for developmental effects; only the Type IV adolescents were a little bit older and earlier mature. The developmental markers were strongly related to increases in problem behaviors (e.g. substance use and involvement in delinquent behaviors). This study shows that the use of a person-centered approach in investigating adolescents' perceived relational support results in valuable findings that would not have been found in a variable-centered approach.

In Chapter 5 an empirical study that further investigates the individual differences in perceived support, represented by the five types, is described. In perceived support three elements can be distinguished: the person who perceives the support, the relationship partner who provides the support, and the relationship between the two persons. The study in chapter 5 focuses on the relationship partner and the relationship characteristics of a relationship that is of special importance in adolescence, namely the friendship. The study includes characteristics of the friends and of the friendships. In order to do so, from the 2104 adolescents of the study in chapter 4, separately for each school class one boy and one girl who had a best friend in class, were selected. As a result 191 adolescents were selected, together with their 191 best friends and 191 adolescents from their class that were not a friend of the adolescents nor of the adolescents' friends. The total number of subjects was 573. It shows that friends of the different types of adolescents do not differ the same way from each other on the different dimensions of perceived support, personality, group functioning, or psychosocial adjustment (well-being, substance use, delinquent behaviors) as the adolescents do. This indicates that in

general the characteristics of the friends are not related to adolescents' individual differences in perceived support, with two exceptions. First, adolescents are likely to have friends who show the same configuration of perceived support as they do. Second, the level of support that friends of Type I and Type IV adolescents perceive from their parents is similar to the level of support that the adolescents themselves perceive from their parents. Subsequently, it is examined whether friendship characteristics were related to differences in configurations (types) of perceived support. The friendship characteristics consisted of similarity and difference scores between the adolescents and their friends on the different domains of functioning. Although the similarity scores on the peer group functioning vary according to the types of adolescents, most of the other similarity scores are unrelated to the types, that is, to individual differences in adolescent perceived relational support. The study shows that the individual differences in adolescent perceived support are unrelated to the characteristics of the relationship partners (friends) and only little to the characteristics of the relationships (friendships), but that they are almost entirely attributable to differences between the adolescents who perceive the support.

In chapter 6 the three empirical studies are evaluated in terms of the social complexity model. The finding that different factors emerge in chapter 3 can be explained by the assumption of the model that the context of the level gives meaning to phenomena and that the same phenomena, even if they are assessed by the same items as was the case in the study, can have different meanings at different levels. At the level of the psychological processes the items refer to the personality, at the group level they reflect group reputations. Also the finding that the group reputations are, but the self-reported personality factors are not related to peer acceptance and rejection can be explained. According to the model each level has properties or characteristics that can not be predicted by characteristics of other levels, but may be predicted by characteristics of the same level.

When adolescents are categorized according to the support they perceive from different relationships (mother, father, special sibling, best friend) it shows that for the vast majority (84%, consisting of the Type I, II, and III adolescents) the level or the content of their perceived support is not only generalized across these relationships (at the relationship level), but also across other levels, that is, across the level of the psychological processes (self-image in terms of the personality) and across the level of the individual behavior (delinquent behaviors and substance use).

Adolescents' perceived support remains relatively unchanged across development. This holds for most of the support factors as well as for most of the types that have been found. This is supported by the model which suggests that the self-concept --that incorporates an individual's cognitions about self, others, but also about relationships, and that reflects the perceptions of relationships-- remains relatively unchanged over time.

To conclude. The findings of the present investigation seem promising for further research on social relationships in adolescence. The use of a person-centered approach has been important because this way subgroups of adolescents have been found that differ in their perceptions of relationships, in their personality, in their behavior, and in their peer group functioning, and that would have been kept unnoticed in a variable-centered approach. The support adolescents perceived does not increase or decrease across development and is probably established in early experiences, also considered the fact that individual differences in perceived support are almost entirely due to differences between the perceiving individuals. This underlines the importance of longitudinal research on the determinants of these individual differences. Finally, every study on relationships, whether cross-sectional or longitudinal, should consider the different levels of the social complexity and their implications.

Samenvatting

In deze dissertatie werden de relaties onderzocht die adolescenten onderhielden met een aantal belangrijke personen uit hun omgeving, en met name de steun die de adolescenten ervaarden van deze relaties.

Sociale relaties staan niet op zich zelf, maar zijn ingebed in een sociale context waarin verschillende niveaus te onderscheiden zijn. Om deze sociale inbedding theoretisch te onderbouwen is in de dissertatie gebruik gemaakt van het "sociale complexiteitsmodel" van Hinde (1997). In dit model worden een zestal niveaus onderscheiden, die elkaar wederzijds beïnvloeden, en die lopen van de psychologische processen in een individu tot aan de maatschappij in het algemeen. Volgens het model heeft elk niveau kenmerken die specifiek zijn voor dat niveau en die niet herleidbaar zijn tot kenmerken van lagere niveaus. Bijvoorbeeld cohesie of hiërarchie binnen een groep kan niet herleid worden tot de afzonderlijke relaties tussen de groepsleden of tot individuele kenmerken. Daarnaast is het de context van de niveaus die betekenis geeft aan fenomenen, waardoor dezelfde fenomenen verschillende betekenissen kunnen hebben op verschillende niveaus.

Vier niveaus van sociale complexiteit zijn van speciaal belang in deze dissertatie omdat een aantal van de aspecten uit de drie studies die gepresenteerd zullen worden gerelateerd zijn aan deze niveaus. De vier niveaus zijn het niveau van de psychologische processen binnen een individu, het niveau van de gedragingen van het individu, het relatieniveau, en het groepsniveau.

In deze dissertatie worden drie empirische studies beschreven die in Hoofdstuk 1 een plaats krijgen in theoretisch kader. Dat hoofdstuk geldt als een theoretische inleiding waarin Hinde's 'sociale complexiteitsmodel' weergegeven wordt en waarin aspecten van de studies gerelateerd worden aan aspecten uit het model.

De drie studies zijn uitgevoerd in het kader van de vierde meetronde in een longitudinaal onderzoek van de vakgroep Ontwikkelingspsychologie van de Katholieke Universiteit Nijmegen, dat in 1986 van start ging, en vervolgd werd in 1987, 1991, en 1994, het jaar waarin de vierde meetronde plaats had. In Hoofdstuk 2 worden de eerste 3 meetronden kort weergegeven en wordt een uitvoerige beschrijving gegeven van de vierde meetronde. De procedure, de proefpersonen, en de meetinstrumenten zullen daarin aan de orde komen.
Hoofdstuk 3 beschrijft een empirische studie naar de beschrijving die adolescenten van zich zelf geven in termen van hun persoonlijkheid en naar de manier waarop ze door klasgenoten beschreven worden. De proefpersonen betroffen hier 2001 adolescenten uit de 2^e en 3^e klassen van het middelbaar onderwijs. Om het zelfbeeld te onderzoeken is gebruik gemaakt van een zelf-rapportage vragenlijst bestaande uit 25 items. Principale en confirmatorische factor analyse toonde dat de verwachte Big Five factoren aanwezig waren. Deze factoren zijn Extraversie,

Vriendelijkheid, Zorgvuldigheid, Emotionele Stabiliteit, en Openheid voor nieuwe ervaringen. Dit is een veelbelovende bevinding, aangezien deze studie één van de eersten is die deze factoren onderzocht heeft middels zelf-rapportage door adolescenten.

Dezelfde items als in de zelf-rapportage vragenlijst zijn tevens in een zogenaamde "peer nominatie vragenlijst" opgenomen, waarin de adolescenten gevraagd werden bij elk item drie tot vijf klasgenoten te noemen die het beste bij dat item pasten. Factor analyse van deze items leverde niet de verwachte Big Five factoren op, die op basis van eerder onderzoek (Norman, 1963) waarin deze nominatie methode toegepast werd verwacht waren, maar vijf andere factoren. Dat waren Agressie-Onachtzaamheid, Prestatiegerichtheid-Teruggetrokkenheid, Zelfvertrouwen, Sociabiliteit, en Emotionaliteit-Nervositeit. Deze factoren geven groepsreputatie dimensies weer. Enkele van de factoren komen sterk overeen met factoren die gevonden zijn in onderzoek naar de groepsreputaties van kinderen. De Big Five factoren bleken geen samenhang te vertonen met acceptatie of verwerping door klasgenoten; de reputatiedimensies daarentegen wel. Met name Zelfvertrouwen en Sociabiliteit bleken sterk samen te hangen met acceptatie, Agressie-Onachtzaamheid sterk met verwerping. De conclusie van deze studie is dat adolescenten zichzelf in termen van de Big Five evalueren, maar dat klasgenoten elkaar evalueren in termen van hun bijdrage aan groepsdoelen in plaats van op hun persoonlijkheidskenmerken.

Hoofdstuk 4 geeft een beschrijving van een empirische studie naar de steun die adolescenten ervaren van hun moeders, vaders, speciale broers of zussen, en, indien aanwezig, van hun beste vrienden. Dit is onderzocht bij een groep van 2262 adolescenten die geselecteerd zijn uit de totale groep van 3361 adolescenten omdat ze over een moeder, vader, speciale broer of zus, en beste vriend beschikten ($n = 2104$) of over deze gezinsleden maar niet over een beste vriend ($n = 158$). De vraag naar de ervaren ondersteuning is op twee manieren onderzocht: via de variabele-gecentreerde en via de persoon-gecentreerde benadering.

Binnen de variabele-gecentreerde benadering is gebruik gemaakt van een 'multiprovider-multiprovision' model waarbinnen verschillende dimensies van ervaren steun voor elk van de bovengenoemde personen onderscheiden zijn. Factoranalyse toonde 5 factoren, waarvan drie factoren provider specifiek zijn (Parental support, Friend support, en Sibling support), en twee provision specifiek (Convergence of Goals en Respect for Autonomy). Al deze factoren, behalve Parental Support, bleken relatief onveranderlijk over tijd te zijn. Voor Parental support gold dat oudere adolescenten (16- en 17-jarigen) lager scoorden dan jongere. Via de persoons-gecentreerde benadering werd onderzocht of er subgroepen of typen adolescenten waren die van elkaar verschilden wat betreft hun patroon of configuratie van steun ervaren van de bovengenoemde personen. Er werden vijf typen gevonden. Bij de eerste drie typen lijkt de ervaren steun gegeneraliseerd te zijn over de vier personen. Type I (35% van de steekproef, Hoge steun) adolescenten ervaren een hoge steun van alle personen, Type II (27%,

Gemiddelde steun) en Type III (22%, Lage steun) rapporteren een gemiddelde of lage steun van de personen. De Type IV adolescenten (9%, Gemengde steun) wijken af van de andere typen doordat ze een gemengd patroon van ervaren steun tonen. Ze ervaren een zeer lage steun van de ouders, een gemiddelde steun van de broers of zussen, maar een relatief hoge steun van de beste vrienden. De Type V adolescenten (7%, Geen beste vriend) werden apart als groep samengesteld, hebben geen beste vriend, en ervaren een gemiddelde steun van hun gezinsleden. Deze vijf typen verschillen niet alleen op hun ervaren steun, maar tevens wat betreft hun functioneren. De Type I, II, en III adolescenten hebben respectievelijk positieve, gemiddelde, en negatieve scores wat betreft hun zelfbeeld (Big Five factoren), welbevinden (zelfwaardering, piekeren, eenzaamheid), middelengebruik, en betrokkenheid bij delinquentie. De Type IV adolescenten hebben een gevarieerd zelfbeeld (Extravert en Vriendelijk, maar niet Zorgvuldig), maar een negatief welbevinden en het hoogste middelengebruik en rapporteren de meeste delinquente gedragingen. De Type V adolescenten tenslotte hebben een tamelijk negatief beeld van zichzelf maar vinden zich zelf wel Zorgvuldig, hebben een positief welbevinden maar zijn wel eenzaam, en gebruiken weinig middelen en zijn niet delinquent. Ook wat het groepsfunctioneren betreft verschillen de adolescenten. De Type I adolescenten hebben volgens klasgenoten het hoogste Zelfvertrouwen en zijn het meest Sociabel. De Type IV adolescenten zijn het meest Agressief-Achteloos, het minst Prestatiegericht en Teruggetrokken, maar tevens hoog Sociabel. De Type V adolescenten tenslotte zijn het meest Prestatiegericht en Teruggetrokken en het minst Sociabel.

Daarnaast is onderzocht in hoeverre er bij de typen sprake was van ontwikkelingseffecten. Om die vraag te beantwoorden is er gebruik gemaakt van vier indicatoren die de ontwikkeling op verschillende gebieden weergeven. Deze indicatoren waren chronologische leeftijd, school jaar (ontwikkeling in hun groepsfunctioneren), puberteitsontwikkeling (biologische ontwikkeling), en de waardering van de puberteitsontwikkeling (psychosociale ontwikkeling). De typen bleken relatief ongevoelig voor ontwikkelingseffecten; alleen de Type IV adolescenten bleken iets ouder en vroeger rijp. De ontwikkelingsmaten waren wel sterk gerelateerd aan toenamen van probleemgedrag zoals middelengebruik of antisociale gedragingen. Uit deze studie blijkt dat het toepassen van een persoons-gecentreerde benadering in relationele ondersteuning waardevolle gegevens oplevert die met een variabele-gecentreerde benadering niet gevonden zouden worden.

In Hoofdstuk 5 wordt een empirische studie besproken die de individuele verschillen in ervaren steun, zoals die weergegeven worden middels de vijf typen, verder onderzoekt. Bij ervaren steun kunnen drie elementen onderscheiden worden: de persoon die de steun ervaart, de relatiepartner die de steun geeft, en de relatie tussen beide personen. De studie in Hoofdstuk 5 richt zich op de relatiepartner en de relatiekenmerken van een relatie die in de adolescentie van groot belang is, namelijk de vriendschap. De studie betreft de kenmerken van de vrienden en

van de vriendschappen. Daartoe zijn uit de 2104 adolescenten van de studie uit Hoofdstuk 4 apart voor elke klas één jongen en één meisje geselecteerd die een beste vriend in de klas hadden. Zo werden 191 adolescenten geselecteerd, alsmede hun beste vrienden (191) en 191 adolescenten die in dezelfde klas zaten maar met geen van beide bevriend waren. In totaal ging het om 573 adolescenten. Het blijkt dat de vrienden van de adolescenten van de verschillende typen niet van elkaar verschillen wat betreft de verschillende dimensies van hun ervaren steun, persoonlijkheid, groepsfunctioneren of psychosociale aanpassing (welbevinden, middelengebruik en delinqentie), zoals de adolescenten dat doen. Hieruit kan afgeleid worden dat de kenmerken van de vrienden over het algemeen niet van belang zijn voor individuele verschillen tussen adolescenten in hun ervaren steun, met twee uitzonderingen. Ten eerste blijken adolescenten vaker vrienden te hebben die dezelfde configuratie van ervaren steun hebben als zijzelf. Ten tweede blijkt dat de steun die vrienden van de Type I en de Type IV adolescenten ervaren van hun ouders overeen komt met de mate die de adolescenten van deze beide typen van hun ouders ervaren. Vervolgens is onderzocht in hoeverre vriendschapskenmerken samenhingen met de verschillen in de configuraties (typen) van ervaren steun van de adolescenten. De vriendschapskenmerken zijn weergegeven via overeenstemmings- en verschilscores tussen de adolescenten en hun vrienden op de verschillende gebieden van functioneren. Hoewel de overeenstemming op groepsfunctioneren varieert in samenhang met de type adolescenten, zijn de meeste overige overeenstemmingscores ongerelateerd aan de typen, dat wil zeggen aan de individuele verschillen in ervaren steun. Het blijkt dat de individuele verschillen in ervaren steun van adolescenten niet met de kenmerken van de relatiepartners (i.e., vrienden) en slechts weinig met de relatiekenmerken (i.e., vriendschapskenmerken) samenhangen, maar vrijwel uitsluitend toegeschreven kunnen worden aan de verschillen tussen de adolescenten zelf die de steun ervaren.

In Hoofdstuk 6 worden de drie empirische studies geëvalueerd in termen van het 'sociale complexiteitsmodel'. Het feit dat er verschillende factoren in Hoofdstuk 3 gevonden worden, kan geheel in overeenstemming met de assumpties van het model verklaard worden uit het feit dat de context van de niveaus betekenis geeft aan fenomenen en dat dezelfde fenomenen, zelfs wanneer ze gemeten worden middels dezelfde items zoals in deze studie het geval was, verschillende betekenissen kunnen hebben op verschillende niveaus. Op het niveau van de psychologische processen refereren de items aan de persoonlijkheid, op het niveau van de groep geven ze de groepsreputaties weer. Ook het feit dat de groepsreputaties wel, maar de zelf-gerapporteerde Big Five persoonlijkheidsfactoren geen samenhang vertonen met peer acceptatie en verwerping is verklaarbaar. Volgens het model heeft elk niveau kenmerken of karakteristieken die niet voorspelbaar zijn uit kenmerken van andere niveaus, maar wel uit kenmerken van hetzelfde niveau.

Wanneer adolescenten gecategoriseerd worden aan de hand van hun steun ervaren in

verschillende relaties (moeders, vaders, speciale broers of zussen, beste vrienden) geldt voor de grote meerderheid (84%, bestaande uit de Type I, II, en III adolescenten) dat het niveau of de beleving van hun ervaren steun niet alleen gegeneraliseerd is over de relaties (binnen het relatieniveau) maar ook naar andere niveaus, zowel naar het niveau van psychologische processen (zelfbeeld in termen van de persoonlijkheid) als naar het niveau van individuele gedragingen (delinquentie of middelengebruik).

De steun die adolescenten ervaren is relatief onveranderlijk over ontwikkeling. Dit geldt zowel voor de ondersteuningsfactoren als voor de meeste ondersteuningstypen die gevonden zijn. Dat wordt ondersteund door het model, waarin gesteld wordt dat het zelfconcept --dat een individu's cognities over zichzelf, anderen, maar ook over relaties incorporeert, en dat de percepties van relaties weergeeft-- relatief onveranderlijk is.

Afsluitend kan gezegd worden dat de bevindingen van het huidige onderzoek veelbelovend lijken voor verder onderzoek naar sociale relaties in de adolescentie. Het toepassen van een persoon-gecentreerde benadering is van groot belang gebleken omdat op deze wijze subgroepen van adolescenten gevonden zijn die in een variabele-gecentreerd onderzoek onopgemerkt blijven, en die verschillen zowel in hun beleving van relaties als in hun persoonlijkheid, in hun gedragingen, en in hun groepsfunctioneren zoals dat waargenomen wordt door klasgenoten. De steun die adolescenten ervaren is relatief onveranderlijk over ontwikkeling en vindt mogelijk haar oorsprong in vroegere ervaringen, waarbij het tevens zo is dat individuele verschillen in ervaren steun vrijwel volledig ter herleiden zijn tot verschillen tussen de waarnemende individuen. Dit onderstreept het belang van longitudinaal onderzoek naar determinanten of longitudinale aspecten van verschillen in ervaren steun. Tenslotte, elk onderzoek dient rekening te houden met de verschillende niveaus van de sociale complexiteit en de implicaties daarvan. Op deze wijze is de complexiteit van relaties wellicht beter te begrijpen.

Curriculum Vitae

Ron Scholte werd op 7 april 1963 in Lichtenvoorde geboren. Hij behaalde in 1981 het Atheneum diploma aan de scholengemeenschap Schaersvoorde te Aalten. Na de vervulling van zijn dienstplicht, het behalen van het HBO-MW diploma (specialisatie Jongeren), en een verblijf van een jaar in Griekenland, begon hij in 1989 met zijn studie klinische psychologie aan de Katholieke Universiteit Nijmegen. Tijdens deze studie liep hij gedurende een jaar stage in de Universitaire Ziekenhuizen in Leuven, waar hij na zijn (cum laude) afstuderen part-time werkzaam was als psycholoog in een praktijk voor psychologische hulpverlening.

Van 1994 tot 1998 was hij verbonden als Assistent in Opleiding aan de vakgroep Ontwikkelingspsychologie van de Katholieke Universiteit Nijmegen. Zijn promotie onderzoek richtte zich op de sociale relaties van adolescenten en op de samenhang tussen de ervaren ondersteuning van adolescenten en hun psychosociaal functioneren. In het kader van de opzet van een vervolgonderzoek verbleef hij gedurende enige weken in de USA. In 1997 werd een artikel van hem bekroond met de ISED-artikelprijs. Per 1 augustus 1998 is hij als docent-onderzoeker verbonden aan de vakgroep Orthopedagogiek van de Katholieke Universiteit Nijmegen.